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THE PHILADELPHIA MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Instead of the accustomed frontispiece, some of the chairmen of the Philadelphia meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION are introduced to the members, notwithstanding all of them have been tireless workers for a time and with like opportunities waiting for them during another fortnight their countenances portray a welcome.

The seventy-fourth annual meeting will be largely attended because of the usual attraction which each year assembles the members, and this is enhanced by the Sesqui-Centennial celebration now at its best, and the general interest in the Headquarters. More than likely provision will be made for taking a vote on the location of site for the latter.

The AMERICAN PHARMACEUTICAL ASSOCIATION has always been considered the organization within which questions of general interest are discussed and the results thereof shaped to serve all concerned in these problems. As an evidence of the attachment and the opportunities offered by contact at these annual conventions sessions of closely related organizations are held, which afterward join in the program of the parent ASSOCIATION. This coöperative spirit is further in evidence within the House of Delegates, which is growing in strength and importance. The work of the Sections influences the pharmaceutical literature of the ensuing year, awakens and directs thought which has a part in shaping American pharmacy. Men of local and national prominence will participate in these sessions so that in addition to many others we will have with us His Honor, the Mayor of Philadelphia, Sir William S. Glyn-Jones, Surgeon-General Cumming, Dr. Edgar Fahs Smith, high lights and representatives of the retail, wholesale and manufacturing industries and organizations and other distinguished citizens—the hosts welcome you!

EDITORIAL

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THE IMPORTANCE OF PHARMACY IN PUBLIC HEALTH SERVICE.

GOVERNOR Albert C. Ritchie, of Maryland, in his address before the recent annual meeting of the Maryland Pharmaceutical Association, emphasized the importance of Pharmacy in Public Health work, and named the latter as one of the two essential activities of the State; the other function being the educational training of the young men and women, so that they will be physically as well as mentally fit to compete in the struggle of life and perform the duties of citizenship. The foregoing are not the words but they give the essence of the Governor's remarks in that connection. He admitted the difficulty of evaluating one undertaking of the State above another, which according to conditions might vary in importance; however, if it became necessary to make a choice between what the State must carry on and some other undertakings, then the Public Health and Educational programs would have to be included among the essentials. He felt certain that the State of Maryland is in accord with these views and he valued Pharmacy as an essential activity of the Public Health Service.

It is indeed gratifying to have the Governor of a great State speak so frankly, and particularly one who is so highly regarded at home for his executive ability, and also in many other sections of the country. There is no question but that the same views are held by other executives, and this importance would be impressed on them if they studied the point of contact with the people through the pharmacy. Incidentally, the point of contact is brought about not only by the professional service rendered by pharmacists, but through the daily business transactions with their patronage. The value of the fine relations which obtain and confidences bestowed is frequently commented on in conversation and print. Governor Ritchie closed his remarks by stating, in substance, that it was the Public Health contact that made the pharmacists' activities of great significance for the State and because of this he took a keen and very active interest in it.

We are prompted to ask the re-reading of the article by Dr. Fischelis in the August number of the JOURNAL (p. 365[1]) wherein opportunities for pharmacy in the health field are noted.

In repeating the words of this comment there is no intention to undervalue the business side of a pharmacy or of a drug store; in most establishments, if not all, there is an interdependence and in most instances there is little difference in their relative importance. A large number of more or less exclusive pharmacies, at this time, might do pharmacy more harm than good, for reasonable compensation is an essential of a successful profession as well as of a worth-while business. The development of such pharmacies is a gradual process, depending somewhat on medical practice. An adequate number of drug stores constitute a public convenience; it may not be considered in that light, but the patrons most assuredly seek the service represented by the related side-lines, as well as that given by the

[1] For the article by Dr. James H. Beal, to which reference is made, see JOUR. A. PH. A., August 1925, pp. 714–727.

prescription department. The individual may fail in his duties, may be unmindful of the ethics of business and the profession, and because of that do harm, but if he is observant of the rules and conduct thereof the fact that such sundry articles represent a large part of the sales is simply an added service for his patrons.

Pharmacists have many opportunities for disseminating Public Health information, and the purpose of this comment is to emphasize the importance of pharmacy to pharmacists and, at this time, its significance in Public Health Service. Pharmacists should seek to keep pharmacy for pharmacists and it is most gratifying that year by year the census of pharmaceutical research workers is growing.—E. G. E.

NATIONAL PHARMACY WEEK.*

The second annual observance of National Pharmacy Week will occur October 10th to 16th, and it is anticipated that it will be even more generally successful than was Pharmacy Week of 1925, which exceeded the fondest expectations of those in charge, not only in results obtained, but as to the number of pharmacists who participated to the extent of furnishing about twenty-five thousand splendid window displays throughout the United States.

The 1926 National Committee on Pharmacy Week is composed of five men appointed by the President of the AMERICAN PHARMACEUTICAL ASSOCIATION and the same number appointed by the President of the National Association of Retail Druggists. These ten men comprise the Executive Committee. The Advisory Committee is composed of the Secretaries of all the State Pharmaceutical Associations.

Each member of the Advisory Committee has charge of and is responsible for the observance in his State. They are in effect the State chairmen and they may appoint as many men within their respective States as they deem necessary to properly assure the success of the movement.

It will be noted, therefore, that the two great National Associations and every State Association in the country are united on the proposition of Pharmacy Week, which assures its success.

The Pharmaceutical Journals of the country are giving every coöperation; the Naborhood Stores Association will, beginning October first, display cards in the street cars of the country which will tell the public that Pharmacy Week is October 10th to 16th; the Wholesale Druggists of the nation are assisting in carrying the message of Pharmacy Week to the retail pharmacists, so that there will be 100 per cent coöperation; the Colleges of Pharmacy from coast to coast are assisting; the Pharmacy Exhibit at the Sesqui-Centennial International Exposition, which occupies six hundred square feet in the Medical Science Section in the Palace of Education and Social Economy, and of which the writer is Director, will display a huge banner, beginning in September, to tell the millions of visitors at the Exposition that Pharmacy Week is October 10th to 16th; those who attend the National Pharmaceutical Conventions in Philadelphia in September will hear a lot about Pharmacy Week and will see a display at Convention headquarters of hundreds

* By Robert J. Ruth, National Chairman, "Pharmacy Week."

of pictures, of window displays, newspaper spreads, etc., which helped to make the first "Pharmacy Week" a success in 1925.

It is hoped that each drug store in the land will have one or more window displays showing the professional side of his establishment. That should be the very minimum of effort in coöperation. Many pharmacists will have Pharmacy Week folders to wrap up with each purchase made in the store, others will have additional comprehensive displays inside their stores. Many local associations, and individual pharmacists as well, will run newspaper spreads. Associations especially will arrange for broadcasting of Pharmacy Week messages at radio stations, and the furnishing of Pharmacy Week speakers at luncheon clubs, Chambers of Commerce, etc.

It is not necessary to neglect the commercial end of the business during Pharmacy Week—in fact it may receive a natural stimulation resulting from the unusual attention which will be attracted to the drug stores of the nation. However, for a pharmacist to attempt to use Pharmacy Week for plain commercial advertising purposes—attempt to exploit merchandise, either in his windows or through newspaper advertising, using a Pharmacy Week tie-up—would be plain prostitution of the whole idea, and would react most unfavorably by impressing the public oppositely as to our laudable intentions.

The Committee on National Pharmacy Week expects the fullest coöperation and observance on the part of every American pharmacist, which will assure success, renew pharmaceutical prestige, and inspire our profession with a needed enthusiasm.

PHARMACY AT THE FOURTH INTERNATIONAL BOTANICAL CONGRESS.

BY H. H. RUSBY.

The Fourth International Botanical Congress met at Ithaca, N. Y., on the campus of Cornell University, August 16th to 22nd, and proved to be a notable success. It was the first time that the Congress had met in America and the occasion was not favorable to a large foreign attendance, owing to the impoverished condition of so many of our European associates. Nevertheless, twenty-five countries were represented by delegates, all being representative and distinguished botanists. As the holding of the Congress in this country was experimental, there was not a little anxiety on the part of the managers as to the success of the meeting. It was hoped that as many as 700 might be in attendance, instead of which a thousand botanists registered, the members of their families swelling the number far above this figure. The supply of badges was exhausted long before the registration was completed, and we observed the novel spectacle of many delegates with their names and numbers merely pinned on their coat lapels! The guests were billeted in the dormitories of the University, at a very moderate rate, and these accommodations were exhausted before the last visitors had arrived. Meals were served in the cafeteria and were excellent. All things considered, the entire management of the affair was admirable. It was also fully appreciated. A more contented and cheerful lot of convention people has rarely been seen, notwithstanding that it rained during almost the entire time.

The social features of the occasion were characteristic, as they were based primarily on scientific and intellectual considerations. A visit to the wonderful

Glen, a botanical bog-excursion, dinners and conversationals where scientific people met to discuss scientific matters, took the place of the soirees and dances of an ordinary convention. Nevertheless, the entire occasion constituted one great sociable, where the personal element was general and intense.

To the writer, the most impressive and constant consideration was a comparison of the American botany of to-day and that of the late 60's, when the Botanical Directory of America was printed on two sides of a note-sheet and was understood to contain the names and addresses of all persons in America known to be interested in the study of plants. To be a botanist, in those days, was merely to know the names of a goodly portion of the plants of one's locality—and to be regarded by his neighbors as being partially luny because of his interest in them. If, however, he gave considerable attention to the "language of flowers," his interest was intelligible and mildly excusable.

The work of the fourth congress was divided up among the following fourteen sections:

A—Agronomy
B—Bacteriology
C—Cytology
D—Morphology, Histology and Paleobotany
E—Ecology
F—Forestry
G—Genetics
H—Horticulture
I—Physiology
J—Pathology
K—Pharmacognosy and Pharmaceutical Botany
L—Taxonomy
M—Mycology

Association of Official Seed Analysts.

It will be realized that the work of every section interlocked with that of every other, some of these relations being very close and compelling, so that those who were specialists in one subject often found it necessary to attend upon some special subject presented in another. A number of hours were devoted to general meetings of the entire congress, but during most of the time all the sections were hard at work in their respective meeting rooms. The ten hundred in attendance represented as many thousands not present, but whose interest and knowledge of the subject would have given them high rank as "botanists" in the year 1870! Here is an evidence of progress and development quite as great as that which has marked any other department of our national life in the same period.

The interest of pharmacists will center in the proceedings of "Section K, Pharmacognosy and Pharmaceutical Botany." The work of this section in succeeding congresses is destined to grow apace, and it will, in future, be a just ground for national pride that its birth occurred at this first congress held in our country. Although a number of pharmacy teachers joined loyally in effecting its establishment, both the idea and its execution must always be credited chiefly to the Secretary, Prof. Heber W. Youngken, of the Massachusetts College of Pharmacy. Only those who have been associated with this able and energetic worker will ever know how studious an interest, how laborious a service, how persistent an attention, was requisite in the Secretary of this new Section to make a success of its undertaking. American pharmacy will do well to make a careful note of this milestone in its progress and to remember the history of its erection. It was not to be expected that even the herculean efforts of Dr. Youngken could awaken a general interest among our pharmacy schools and secure a general participation in the proceedings on this first occasion. Nevertheless, the proceed-

ings were important, and of great interest, and have been accepted by the Congress as a worthy contribution to its proceedings.

The Chairman's address, on "The Value and Limitations of Histology in Vegetable Taxonomy," discussed the relation of the study of internal structure of vegetative organs to the classification and determination of plants. Its particular object was to encourage pharmacognosists, while engaged in the study of drug structure, to extend such study to the comparative structure of the relatives of the medicinal species, so as to become contributors to the scientific literature of the comparative anatomy of plants.

"The Necessity for a More Thorough Anatomical Investigation of Drugs," by Heinrich Zörnig, of the University of Basel, was read in English, by Secretary Youngken, in the absence of the author.

Mr. Canis, of the New Jersey College of Pharmacy, translated and read a paper by W. Brandt, of Frankfort-on-the-Main, on "Die Drüsenhaare der Labiatæ und Compositæ." A second paper by the same author which had been announced, was interrupted in the writing by his illness and could not be supplied.

"The Histology of the Rhizome of the Common Pickerel Weed," by Zdenek F. Klan, of the University of Prague and Oliver A. Farwell of the Laboratory of Parke, Davis & Co., was to have been read by Mr. Farwell, who was detained by illness. It was read by the Secretary.

The writer exhibited a collection of 22 wild edible fruits of Bolivia, all representing species hitherto unknown, and five known species, the fruits of which have not been described, the entire collection having been acquired on the Mulford Expedition of 1921–1922. These specimens consisted chiefly of leafy twigs, bearing the fruits, preserved in formaldehyde solution and were from the Museum of the New York Botanical Garden.

The paper on "Recent Researches in Saponins and Saponin Plants," by R. Wasicky, of the Pharmacognostic Institute of the University of Vienna, was translated and read by Mr. Canis, and is an exceedingly valuable contribution to this difficult subject.

"Lichens Occurring on Drugs," by Charles C. Plitt of the University of Maryland, was presented by the author himself.

An announced paper on "Saponins," by W. Brandt had not arrived and was read by title.

Some hours were devoted to a "Symposium on Cascara Sagrada." This important contribution was arranged by Prof. E. N. Gathercoal, of the University of Illinois. "The Growth and Collection" of the drug was discussed by T. J. Starker, of Corvallis, Ore., his paper being read, with very complete illustrations, by Professor Gathercoal, in the absence of the author. Mr. A. J. Schwarz, of Eli Lilly & Co., discussed "The Cathartic Properties of the Wood." A very complete presentation of our knowledge of the constituents of Cascara was presented by George D. Beal of the University of Illinois, the paper read by Professor Gathercoal who himself exhaustively considered "The Colorimetric Valuation" of the drug. Perhaps the most important effect of this symposium was to reveal how far we are from a complete knowledge of the active constituents of this drug, in spite of the great amount of study that it has received during half a century.

"The Histology of Several Manna Yielding Barks," by Prof. Fanchon Hart,

of the New York College of Pharmacy, was an attempt by the author to report characters of fragments of bark occurring in Manna, by which the species yielding it could be determined. It was submitted as a preliminary report only, to be followed by much more work. Some very fine drawings of tissue elements accompanied the text.

"A Histological Study of the Genus Apocynum," by Prof. Charles W. Ballard of the same college was also a preliminary study, dealing with the species *canabinum*, *pubescens*, *album*, *hypericifolium*, *urceolifer* and *androsaemifolium*. There is the greatest difference of opinion among our taxonomists as to the specific demarcations in this genus, some regarding as mere varieties those considered as species by others. Dr. Ballard's drawings of stigmas and anthers left no possible doubt as to the specific standing of those named above. The histological characters were less distinctive. The most important practical teaching of the paper was to the effect that the NATIONAL FORMULARY is wrong in saying that *A. cannabinum* contains "few or no stone-cells." It appears to contain none, the "few" reported probably having been found in some associated rhizome, not pertaining to this species.

An interesting study of Digitalis, illustrated by a fine series of specimens, was introduced by Prof. Anton Viehoever of the Phila. College of Pharmacy and Science.

There was much disappointment at the absence of Dr. Anton Hogstad, Jr., of the University of Minnesota, whose paper on "The Origin, Nature and Physiological Rôle of Essential Oils" was read by title. The fine critical work done by this investigator on Oil of Chenopodium has attracted great attention, and we had looked forward with agreeable anticipation to having him discuss the subject at this meeting.

The great event in the work of this section was the paper by Dr. Carl Mez, of Königsberg, on his method of determining the genetic relationship of plants, as a basis for their taxonomic arrangement, as well as for the determination of many important practical questions in pharmacognosy and medicine, by purely chemical tests, using serums and extracts. The subject is too extensive and abstruse to be even stated at this place, but it is a pleasure to announce that it is to be presented in English in suitable American publications. The eminent author was in attendance throughout the sessions. The section was most fortunate in having the services of Mr. Canis, who was not only a good translator, but who had a sufficiently good grasp of the subject to interpret explanations, as well as language.

Now that Section K has been established and so well supported by American pharmaceutical botanists, it is to be hoped that our people, generally, will interest themselves in the work and lend increased support to the fifth congress, which will convene in London in 1930.

THE RED CROSS SERVES HUMANITY—JOIN IN THE ANNUAL ROLL CALL.

"Endowed with the spirit of that charity which heals the body, informs and clears the mind, ministers to the very soul of our stricken veterans, the Red Cross is with loving hand administering an unstinted helpfulness to the disabled and their families." We know every pharmacist will share in the annual opportunity.

SCIENTIFIC SECTION

PHILIPPINE GINGER.

BY PATROCINIO VALENZUELA.

(*Continued from p. 661, August 1926.*)

EXTRACTION WITH ALCOHOL.

The peculiar condition in which the drug (Lot II) had arrived on account of the long time of transportation precluded drying, grinding, and extraction with selective solvents in the usual manner. Hence, the rhizomes, weighing 26 kilos, were sliced as rapidly as possible and the thin slices exposed to the extracting influence of alcohol. The process of fractional percolation was resorted to and the alcohol of the most concentrated extract recovered and used over again. The process was repeated until the extract obtained upon evaporation of the last tincture was practically colorless. Thus there were obtained as final products:

A. An alcoholic distillate, and

B. A liquid extract containing sufficient alcohol to insure its preservation while the time-consuming process of extraction was going on. This extract was shaken out repeatedly with petroleum ether. Upon evaporation of the hydrocarbon there was obtained an extract.

C. Which weighed about 925 grams, corresponding to a yield of 3.55 per cent with reference to the original drug. This was steam distilled and yielded.

I. A volatile oil, 46.4 grams, or about 0.172 per cent computed with reference to the original drug, and

II. A residue, chiefly fatty oil weighing 88.5 grams or 0.363 per cent.

The alcoholic distillate (A) which remained at the end of the extraction and which naturally contained other volatile constituents besides ethyl hydroxide and which amounted to about 10 gallons was redistilled in a 60-liter copper still so that the last portion was collected in five separate liter fractions. Upon refractionation of each of these fractions the bulk of the alcohol was removed between 78° and 80° Fractions 80° to 85° were relatively small and consisted practically of ethyl alcohol. The fractions above 85° showed a slight turbidity and had an aromatic odor. In several instances even a few drops of oil had separated. However, the amount of volatile oil thus obtained was too small for separate study, hence was combined with the volatile oil obtained by steam distillation of the petroleum ether extract.

The volatile oil (C-I) obtained upon distillation of the petroleum ether extract of the concentrated alcoholic extract with water vapor was soluble in about 16 volumes of 80 per cent alcohol.

The only volatile oil obtained from Philippine ginger is that reported by Bacon (1) which had been obtained by the usual process of distillation. For the sake of comparison the constants are herewith tabulated:

	Valenzuela.	Bacon.
$d_{25°}$	0.8374	0.8850
$n_{D25°}$	1.4620	1.4830 (30° C.)
α_D	−7.43° (50 mm.)	−5.9° (30° C.)
S. V.	..	14

The aqueous distillate from which the volatile oil described above had been separated was cohobated twice. The first cohobation yielded 1.6 cc. or 2.88 per cent of the original oil, the second 0.4 cc. or 0.72 per cent, hence a total of 2 cc. or 3.61 per cent. The density of this oil was 0.8369. This was combined with the original oil to which was also added the small amount obtained from several fractionations of the alcoholic distillate.

The combined oil was examined with the following results:

Schiff's reagent gave a positive result indicating the presence of aldehyde.

Ferric chloride gave a negative test for phenol.

The following chemical constants were determined:

	I.	II.
Acid value	2.22	...
Ester value	32.33	33.28
Ester value (after acetylization)	88.65	87.97

Comparison of the above values with those recorded in the literature shows that the acid value is practically within those reported.[1] The ester values both before and after acetylation were almost twice as high as those reported in the literature. Bacon (*loc. cit.*) reported a saponification value of 14.

Fractionation.—Thirty-nine cc. of the combined oil were submitted to fractional distillation under diminished pressure, using a 100-cc. Claisen flask heated over a bath consisting of an alloy of bismuth (40), lead (40) and tin (20). (M. p. 111° C.). The results were as follows:

Fraction.	Volume in cc.	B. p.	Pressure.	$d_{25}°$.	$n_{D25}°$.	α_D (50 mm.).
I	6.2	below 43° C.	6 mm.	0.7718	1.4250	..
II	4.2	43–100° C.	5 mm.	0.8188	1.4430	..
III	7.0	100–115° C.	5 mm.	0.8855	1.4800	−0.62°
IV	5.6	115–118° C.	5 mm.	0.8910	1.4900	..
Residue					1.5090	

The distillation was not carried farther because of decomposition.

Fraction I was practically colorless and very aromatic. It was almost insoluble in alcohol and an attempt to obtain a clear solution failed, thereby rendering the determination of the optical rotation of the alcoholic solution impossible.

Fraction II was almost colorless and possessed an odor somewhat characteristic of ginger.

Fraction III was slightly greenish in color and had a slight resinous odor.

Fraction IV was yellowish in color and also had a slight resinous odor.

The residue was thick, reddish brown and had a resinous odor.

The Aldehyde.—The volatile oil was shaken with an equal volume of 30 per cent sodium bisulfite solution. This was allowed to remain in contact with the oil over night. The oil was then separated and dried with anhydrous sodium sulphate. The aqueous solution containing the aldehyde addition product was neutralized with sodium carbonate and steam distilled. The aqueous distillate was collected in fractions as follows:

Fraction.	Volume.	Appearance.	Odor.	Aldehyde reaction.
I	105 cc.	Slightly turbid	Aromatic	Positive to Schiff's test Positive to ammoniacal silver nitrate test.

[1] G.-H.-K. "The Vol. Oils," 2, 282 (1916).

Fraction.	Volume.	Appearance.	Odor.	Aldehyde reaction.
II	155 cc.	Very slightly turbid	Practically odorless	Faint reaction with Schiff's reagent. Negative to ammoniacal $AgNO_3$ test.
III	70 cc.	Clear	Odorless	Negative to Schiff's reagent. Negative to ammoniacal $AgNO_3$ test.
IV	80 cc.	Clear	Odorless	Negative to Schiff's reagent. Negative to ammoniacal $AgNO_3$ test.

The combined Fractions II, III and IV were tested with metanitrobenzhydrazide with negative results.

Semicarbazone.—Fraction I was shaken out several times with ether. Upon evaporation of the solvent, very few and small droplets of yellowish oil with a pleasant odor were obtained. These were dissolved in 5 cc. of alcohol and the semicarbazone prepared. The yield was very small but sufficed for a melting-point determination. It melted at 144–145° C. This does not agree with that of the semicarbazones of the aldehydes previously found in ginger.

Fatty Oil. (C-II).—This reddish brown, pungent, thick, fatty extract was obtained by repeated extraction of the non-volatile portions of the residue from steam distillation with petroleum ether and subsequent evaporation of the hydrocarbon. It had a specific gravity of 1.0694 and gave the following saponification values: 41.78 and 41.04.

The whole amount of the fatty extract was saponified with an excess of alcoholic potash for an hour. After recovery of the ethyl hydroxide, a brownish black semi-solid soap was obtained. This was melted on a water-bath and dissolved in about five times its volume of hot water. Upon cooling, the unsaponifiable matter was extracted several times with ether. The fatty acids were then liberated by addition of sufficient amount of hydrochloric acid (equal volumes of concentrated hydrochloric acid and water). The fatty acids which separated on the top were removed from the aqueous layer and filtered hot. These fatty acids were in form of a brownish black oily liquid, left a permanent transparent spot on paper, possessed a persistent odor of ginger, were slightly pungent to the taste and weighed about 45.5 grams, corresponding to a yield of about 0.175 per cent of the original drug.

The ether from the unsaponifiable matter was allowed to evaporate and the residue set aside for examination. See unsaponifiable matter.

Fatty Acids.—Assuming that these consisted of a mixture of solid and liquid fatty acids, an attempt was made to isolate the individual constituents by the method of Muter and de Koningh's[1] modified by Lane[2] and Lewkowitsch.[3]

The method which was slightly modified was as follows:

The fatty acids were saponified with sufficient amount of alcoholic potash using phenolphthalein as indicator. Considerable difficulty was encountered in deciding upon the end-point because of the reddish brown color of the solution.

[1] *Analyst*, p. 61 (1889).

[2] *Jour. Amer. Chem. Soc.*, 15, 110 (1893).

[3] "Chem. Techn. and Ana. Oils, Fats and Waxes," 6th ed., vol. 1, p. 556 (1921).

This was accomplished by dropping from time to time a small drop of the indicator along the side of the Erlenmeyer flask. Thus, by careful observation, the end-point was determined when the red color was permanently produced after shaking by the contact of the liquid with the phenolphthalein on the side of the flask. Upon evaporation and on cooling, a reddish brown soap was obtained. This soap was melted and added to about 100 cc. of boiling 20 per cent lead acetate solution. On cooling, the brownish lead soap acquired a sticky consistency while the supernatant liquid was turbid and yellowish. The lead soap was washed several times with boiling distilled water. After five washings, the latter became practically colorless although slightly turbid. The lead soap thus obtained was melted and sufficient amount of petroleum ether added. Twitchell[1] and Lane[2] were among those who suggested the use of petroleum ether in separating the lead soap of the liquid fatty acids from the solid. The soap and petroleum ether were heated to boiling on a water-bath and set aside over night. The petroleum ether layer was then decanted and treated with about 20 cc. of equal volumes of water and hydrochloric acid. Upon standing in a separatory funnel the fatty substance in the petroleum ether was separated mechanically.

The lead soap left after treatment with petroleum ether was then extracted with ether. A brownish ethereal fatty extract was obtained. This was set aside for further examination (see fatty substance extracted by ether).

The residue which was supposed to contain the lead soap of the solid fatty acids was treated as described under solid fatty acids.

Fatty Substances Extracted by Petroleum Ether.—Upon evaporation of the solvent, 18 grams of a dark brown fatty liquid were obtained. This was divided into two portions which were examined separately.

First Portion.—The determination of the acid value was first made. The weighed substance was dissolved in previously neutralized alcohol and then titrated with an alkali. The following results were obtained:

Fraction.	Weight of substance.	Acid value.
I	0.8676	23.93
II	0.9150	25.00

The above values were exceedingly low. Since not all of the fatty substance went into solution, the contents of the flasks wherein titrations were made were allowed to stand over night. Then the supernatant liquid was poured into another flask. The undissolved portions were dried over calcium chloride and weighed. By subtracting the weights of the undissolved portions from the original weights, the following acid values were obtained:

Fraction.	Weight of substance.	Acid value.
I	0.4120	50.41
II	0.4900	49.47

Another duplicate determination of the acid value was further made by using an excess of the alkali and titrating back the excess with acid. The substance was

[1] E. Twitchell, *Jour. Amer. Chem. Soc.*, 17, 289–295 (1895). Also *Jour. Soc. Chem. Ind.*, 14, 515 (1895).

[2] N. J. Lane, *Jour. Soc. Chem. Ind.*, 26, 597 (1907).

first dissolved in previously neutralized alcohol and then heated to boiling. Then titrations were made while hot. The results were as follows:

Fraction.	Weight of substance.	Acid value.
I	1.1540	51.19
II	1.2630	53.43

Such close figures obtained in the titrations were noteworthy. Comparison, however, of these figures with the known neutralization values of the liquid fatty acids do not reveal definitely the fatty acids present obtained from the lead soap soluble in petroleum ether. Presumably, such low neutralization values may be accounted for by the presence of other substance extracted by petroleum ether other than the lead soap of the liquid fatty acids.

Second Portion.—The isolated liquid fatty acids from the lead soap of the petroleum ether were converted into their bromo derivatives according to the method of Lewkowitsch[1] in order to effect their separation if possible. The acids were dissolved in 40 cc. of ether containing 2 cc. of glacial acetic acid. The solution was kept at a temperature of 5° C. and bromine was gradually added to a slight excess, keeping the ethereal solution at the same temperature. Then it was allowed to stand for four hours to permit the separation of the hexabromides. No separation took place hence indicating the absence of linolenic acid.

The solvent was then evaporated and the residue dissolved in petroleum ether. The solution was allowed to stand over night at a temperature below 5° C. No separation of tetrabromides took place.

Upon evaporation of the solvent a brownish black semi-solid fatty substance was obtained. This had a fatty odor and congealed on cooling. In order to decide whether this was oleic acid dibromide, the bromine content was estimated according to Stepanow's method.[2] The process was slightly modified by using a slight excess of 10 per cent silver nitrate solution, filtering the AgBr and washing the latter with 95 per cent alcohol and drying to constant weight over calcium chloride. The results were as follows:

Weight of substance	0.6586
Weight of AgBr	0.6194
Calculated percentage of Br in $C_{18}H_{34}O_2Br_2$	36.13 per cent
Found	40.82 per cent

The difference in the bromine content may be due to the presence of small quantities of other bromides which did not separate but dissolved with the oleic dibromide. The slightly high iodine value (see iodine value of the acid extracted by ether) seems to corroborate this view.

Fatty Substance Extracted by Ether.—Upon evaporation of the ether, a brownish black, semi-solid fatty extract was obtained. This was treated with 20 cc. of equal volumes of hydrochloric acid and water. The fatty substance remained as a brownish sticky paste even after stirring for some time. However, a reaction had certainly taken place as indicated by the increase in volume of the aqueous solution. The supernatant liquid (aqueous solution) was separated and the undissolved portion was set aside over night in a desiccator over calcium chloride. The acid

[1] "Chem. Tech. and Ana. Oils, Fats and Waxes," 6th ed., vol. 1, p. 579 (1921).

[2] *Ber.*, 9, 4056 (1906); "Kamm's Qual. Org. Ana." p. 168 (1923).

value of this fatty substance was determined. The weighed substance was dissolved in previously neutralized alcohol and then titrated directly with alkali. The following results were obtained:

Fraction.	Weight of substance.	Acid value.
I	1.0670	51.96
II	1.9680	54.46
		Average 53.21

These values are, indeed, too low. However, it is again interesting to note here that the figures found are almost the same as those found in connection with the acids extracted by petroleum ether. In the titration it was observed that quite an amount of lead chloride was mixed with the acids. Hence, the separation of the acids was made by repeated extraction with ether. Quite an amount of white precipitate was obtained which proved to be lead chloride.

The acid values of the ether extract freed from lead chloride were as follows:

Fraction.	Weight of substance.	Acid value.
I	0.9682	93.89
II	0.7780	95.00

The neutralization values given above seem to indicate the presence of substance or substances other than fatty acids.

The iodine value of the ether extract was determined. The weighed substance was dissolved in 10 cc. of chloroform and placed in a 500 cc.-wide-mouth glass-stoppered bottle. Twenty-five cc. of iodine solution were added and then the bottles were placed in a cool and dark place and allowed to stand for 30 minutes with occasional shaking. At the same time a blank test was made. The results were as follows:

Fraction.	Weight of substance.	Iodine value.
I	0.2028	104.51
II	0.2316	104.12

The iodine value of oleic acid is 90.07. The results may be accounted for by the presence of small quantities of more unsaturated fatty acids.

Oxidation of the Liquid Fatty Acids.—In view of the indications of the presence of other unsaturated fatty acids which were not obtained in the preparation of the bromo derivations with exception of oleic acid, the oxidation of the liquid fatty acids by means of a dilute alkaline solution of potassium permanganate was carried out according to the process of Lewkowitsch.[1]

The process was carried out as follows: 1 gram of the liquid acid obtained from the ether extraction was neutralized with 1.2 cc. of caustic potash of 1.27 sp. gr. (17 per cent solution). The resulting soap which was a brownish semi-solid mass was dissolved in 66.6 cc. of water and heated on a water-bath until a solution of the soap was obtained. Then an equal volume of a $1^1/_2$ per cent $KMnO_4$ solution was added in a very fine stream with the aid of a burette with constant stirring of the solution. After all the $KMnO_4$ solution had been added, the mixture was allowed to stand for 10 minutes. Sulphurous acid solution was then slowly added with constant agitation until all the precipitated manganese peroxide was dissolved and an acid reaction was imparted to the solution.

[1] "Chem. Tech. and Ana. Oils, Fats and Waxes," 6th ed., vol. 1, p. 575 (1921).

The brownish white precipitate was separated by means of a filter and washed with a very small amount of ether. Then it was dissolved in about 70 cc. of ether. The ethereal solution was evaporated to about 10 cc. On cooling, a slightly brownish substance was obtained which melted at about 130° C. When once crystallized from alcohol, it melted at 135° C. Dihydroxystearic acid melts at 137° C.[1]

On dissolving the precipitate with ether, a small quantity of yellowish white precipitate separated. This melted at 175° C. The small amount of precipitate was twice recrystallized from alcohol from which perfectly white crystals melting at 171–172° C. were obtained. Sativic acid melts at 173° C. The quantity of the acid was too small to admit of further characterization. This indicates the presence of linolic acid. The slightly higher iodine value of the acid extracted by ether and bromine content of the dibromide may be due to the presence of linolic acid.

On neutralization of the acid filtrate (from sulphurous acid treatment) with caustic potash and evaporation to a small volume, no precipitate was formed. This seemed to indicate the absence of other hydroxy acids.

Solid Fatty Acids.—The residue left after extraction of the lead salts with ether was treated with about 20 cc. of equal volumes of hydrochloric acid and water. A large amount of $PbCl_2$ separated which was removed. The ether was evaporated, leaving a brownish solid cake. This mass when dried between filter papers weighed about 5 grams.

The acid value of this mass was determined:

Fraction.	Weight of substance.	Acid value.
I	0.5360	89.11
II	0.5450	92.00

These values did not reveal very much of the nature of the solid acids present in the mass.

Fractional crystallization was then effected. The mass obtained was dissolved in warm alcohol. Traces of lead chloride which separated were eliminated by filtration. The alcoholic solution was then concentrated and set aside for crystallization. After 3 hours, no crystallization took place. The solution was further concentrated to a slight extent and cooled in ice water. After cooling for about an hour, an exceedingly small amount of brownish solids separated out. These were collected on a force filter and dried on filter paper. Weight 2.6 milligrams, m. p. 60–65° C.

The mother liquid was concentrated further and then placed in a freezing mixture whereby a greater amount of slightly brownish solids were obtained. Weight 0.3200 gram, m. p. 55–56° C. Purification was effected by dissolving in about 75 cc. of alcohol and decolorizing the solution with charcoal. After two recrystallizations from alcohol, a very small amount of perfectly white crystals were obtained, melting at 70° C. Stearic acid melts at 69.3° C.

Other solid acids may possibly be present also but the small quantity of the material did not permit of their separation. The first crop of crystals weighing

[1] Lewkowitsch, "Chem. Techn. Ana. Oils, Fats, and Waxes," 6th ed., 1, 577 (1921). Cp. Lewkowitsch, *Ibid.*, 233.

2.6 milligrams melted at 60–65° C. and could not be purified further, hence it could not be established whether other solid acids are present besides stearic.

UNSAPONIFIABLE MATTER.

Attempts were made to isolate phytosterol either as such or as acetate. In the case of the former, the unsaponifiable matter was twice extracted with absolute alcohol, and then set aside for crystallization. No crystals, however, separated even after standing over three months. The unsaponifiable matter left after extraction with absolute alcohol was then acetylized by Lewkowitsch's process.[1]

The 4.8572 grams of the substance thus treated was completely dissolved in acetic anhydride and no separation took place. According to Lewkowitsch, this is indicative of the presence of aliphatic alcohols.

The determination of the saponification value of the acetylized unsaponifiable matter gave the following results:

Fraction.	Weight of substance.	Saponification value.
I	1.1640 Gm.	117.14
II	1.1416 Gm.	119.44

The acetate of melissyl (myricyl) alcohol[17] ($C_{30}H_{62}O$) has a saponification value of 116.7. Although the unsaponifiable matter of ginger may contain other higher alcohols, the indications seem to suggest the presence of melissyl alcohol as its main constituent.

ALCOHOLIC EXTRACT.

The alcoholic extract which had been shaken out with petroleum ether was then treated with a saturated solution of basic lead acetate added drop by drop while the reacting mixture was being continuously stirred. A slightly yellowish white precipitate was obtained. The precipitate was separated on a force filter and allowed to dry. The dried precipitate was then reduced to No. 20 powder and suspended in distilled water. Then the lead was separated by passing hydrogen sulphide until the washings did not precipitate further upon the addition of diluted sulphuric acid. The black precipitate (PbS + adhering substances) mixed with sufficient quantity of charcoal was then extracted with alcohol by refluxing for about one hour. Upon evaporation of the solvent, white needle-like crystals with a slight brownish tint were obtained. These crystals melted at 119° C. When the precipitate was afterwards extracted with ether in the cold, another crop of

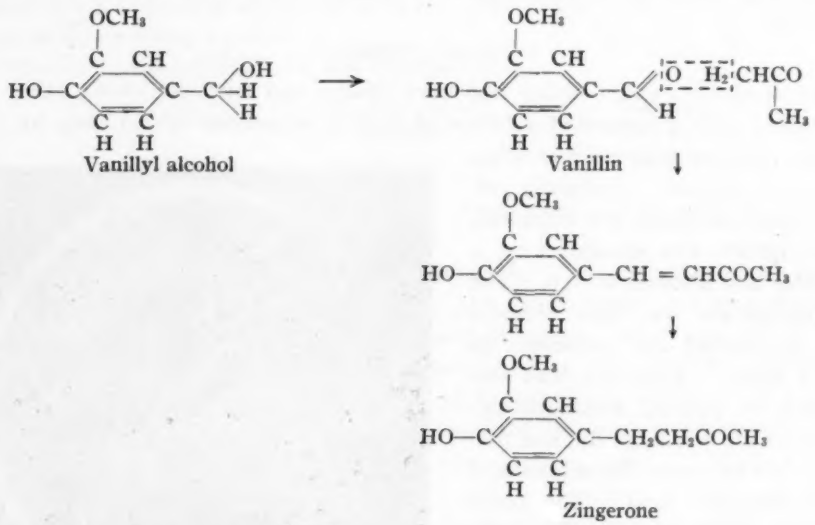
Fig. 12.—Crystals of vanillyl alcohol.

[1] Lewkowitsch, "Chem. Tech. and Ana. Oils, Fats, and Waxes," 6th ed., 1, 613 (1921).
[2] Lewkowitsch, "Chem. Tech. and Ana. Oils, Fats, and Waxes," 6th ed., 1, 617 (1921).

perfectly white crystalline needles were left upon evaporation of the solvent. A third and even a fourth crop of crystals were obtained. These crystals melted at 115° to 116° C. The total amount, however, was small. Their appearance is revealed by the accompanying photomicrograph (Fig. 12). With a drop of concentrated H_2SO_4 a faint brownish violet color was produced. The crystals dissolved in alcohol as well as in ether. Their odor recalled that of vanilla. Vanillyl alcohol, (HO-C$_6$H$_3$(OMe)-CH_2OH) and acetovanillon, (HO-C$_6$H$_3$(OMe)-$COCH_3$) both melt at 115° C.

Attempts to prepare the semicarbazone and the oxime gave negative results for acetovanillon. Although the amount obtained was not sufficient to permit of further characterization, the tests so far made seem to indicate that the substance is vanillyl alcohol.

The presence of vanillyl alcohol indeed plays an important rôle in the biogenesis of some of the pungent principles of the ginger rhizome. As pointed out elsewhere zingerone, one of the pungent principles of ginger has been synthesized by the condensation of vanillin and acetone and the subsequent reduction of the unsaturated ketone. With the presence of vanillyl alcohol in ginger rhizome, it may be assumed that a similar synthesis can be effected by the plant. The formation of zingerone from vanillyl alcohol may be indicated by the following reactions:



The Pungent Principles.—After the isolation of vanillyl alcohol with ether, the residue (PbS, etc.) was refluxed with alcohol for several hours. Upon evaporation of the solvent a light, yellowish brown, very thick syrupy residue was obtained. By subsequent extraction of the alcoholic residue with ether in the cold and evaporation of the solvent a similar product was obtained. This had an extreme pungent taste. Presumably, this is similar to the "gingerol" of Thresh. No crystals have so far separated after standing over two months. Assuming that it may contain zingerone, shogaol and probably other bodies of definite chemical composition which have so far not been identified in Philippine ginger, attempts were made to

prepare the derivatives. The amount was not large enough to admit of fractionation by distillation.

The preparation of a semicarbazone yielded unsatisfactory results. Besides a resinous substance melting between 138 and 140°, crystals were obtained upon evaporation of the mother liquid. These, however, may have been but a mixture of the reagents used. According to Nomura (2) both the phenylhydrazone and the semicarbazone of zingerone could not be obtained in a pure state because of the instability of these compounds. Lapworth (3) also states that whereas zingerone "readily yields a crystalline phenyl hydrazone and semicarbazone" these compounds are "difficult to purify as they quickly decompose in solution." Attempts to prepare an oxime likewise yielded a resinous product.

Isolation of Sugar from Alcoholic Extract.—The yellowish filtrate obtained upon separation of the basic lead acetate precipitate was freed of excess of lead by means of hydrogen sulphide. It gave a positive reaction with Fehling's solution.

Part of the filtrate was dried in an electric oven at about 45° C. another part in a vacuum oven at 60° C. In both cases a brownish residue was obtained which had an odor of acetic acid.

Preparation of Phenylglucosazone.—The osazone was prepared according to Fisher's method. (4) Masses of fine yellow crystals separated after about five minutes. They melted at 198°, after recrystallization from diluted alcohol at 204°. Phenylglucosazone melts between 204° and 205°.

Oxidation of the Sugar to Saccharic Acid.—Since phenylglucosazone may be obtained from either glucose or fructose, the saccharine residue was oxidized with nitric acid according to Gans and Tollen's process (5). Potassium acid saccharate was thus obtained identifying the sugar present in the original filtrate as glucose. Further evidence of the identity of this sugar was supplied by the reduction of picric acid to picramic acid. Two grams of the product were dissolved in about 5 cc. of water. Then about 3 cc. of saturated solution of picric acid and 1 cc. of 10 per cent KOH solution were added. On warming on a water-bath a blood-red coloration was developed.

Yield of Sugar.—The amount of glucose contained in the saccharine extract obtained after drying in the oven was determined by means of Munson and Walker's method. (6) Four grams of material yielded 0.828 gram of CuO, the equivalent of 3.916 grams of glucose = 97.9 per cent. This corresponds to 0.137 per cent of glucose in the rhizomes.

REFERENCES.

(1) S. P. Mulliken, "Identif. Pure Org. Compounds," Vol. I, p. 95 (1904).
(2) *Jour. Chem. Soc.*, 111, 771 (1917).
(3) *Ibid.*, p. 785.
(4) H. L. Fisher, "Lab. Manual Org. Chem.," 2nd ed., p. 127 (1924).
(5) *Ann.*, 249, 215 (1888).
(6) *Jour. Am. Chem. Soc.*, 28, 163 (1906); *Ibid.*, 29, 541 (1907); *U. S. Dept. Agric. Bur. of Chem. Bull.*, 107 (rev.), p. 241; *Circ.*, 82.

SUMMARY AND CONCLUSIONS.

1. The histological study shows that there is practically no difference between the anatomical structures of Philippine ginger and that of commercial varieties.

2. An attempt to raise plants from rhizomes (Lot III) in the Pharmaceutical Garden gave unsatisfactory results. Transferred to the green house, three of the rhizomes developed plants of full size.

3. Fresh rhizomes contain about 80 per cent of moisture, whereas partially air dried rhizomes yield about 70 per cent. The high moisture content of the first two lots shipped from Manila is indicative of partial decomposition undergone by the rhizomes.

4. Ash determinations reveal an ash content within the standard requirements for ginger.

5. The presence of oxidase in the fresh rhizome is indicated.

6. The limit of pungency of 1, peridermal; 2, cortical; 3, parenchymal, and the 4, entire rhizome was determined. The cortical portion was found to be most pungent. The peridermal portion gave a limit of pungency greater than the parenchymal which indirectly shows that the periderm may affect the yield of the pungent and possibly other constituents.

7. A yield of 0.172 per cent of volatile oil was obtained. This oil has the following properties: $d_{25°}$, 0.8374; $n_{D25°}$ 1.4620; α_D −7.43 (50 mm.); A. V., 2.22; E. V., 32.80 (average); E. V. (after acetylation) 88.31 (average).

8. The presence of aldehyde having been indicated a small amount was isolated yielding a semicarbazone melting at 144–145°.

9. Oleic, linolic and stearic acids were isolated and identified.

10. The presence of melissyl alcohol and possibly other higher alcohols in the unsaponifiable matter was suggested.

11. An exceedingly small quantity of vanillyl alcohol was isolated.

12. A pungent material was isolated but the amount was too small to admit of the identification of a definite chemical compound.

13. About 0.137 per cent of *d*-glucose was isolated. The isolation of this sugar and that of vanillyl alcohol suggests the possible presence of vanillyl glucoside.

14. A hypothesis of the biogenesis of zingerone in ginger rhizome is recorded.

15. Philippine ginger does not differ materially from the other commercial varieties. Considering the current price in the Philippines, *viz.*, $0.05 to 0.20 per kilo of the partially air dried and $0.35, 0.50 and 0.60 per pound of the dried African and Jamaica varieties, respectively, the commercial possibilities are promising.

THE ACTION OF CAFFEINE ON THE POISONED HEART.*[1]

BY CHARLES C. HASKELL.

From a consideration of the action of caffeine on the normal animal, this drug would seem to be nearly an ideal circulatory stimulant. By an effect on the medullary center, caffeine tends to cause vasoconstriction; as a rule, however, the peripheral action, manifested on the vessel wall predominates, so that vascular relaxation of a moderate degree is produced. Along with this action on the vessels,

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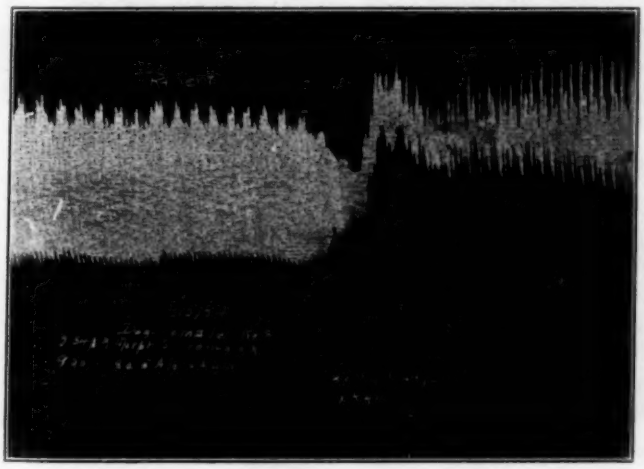
* Scientific Section, A. PH. A., Des Moines meeting, 1925.

[1] The expense incident to this investigation was met by a grant from the Research Fund of the AMERICAN PHARMACEUTICAL ASSOCIATION.

caffeine distinctly affects the heart; the force and the frequency of the contractions being increased. This cardiac action of caffeine is illustrated in *Tracing No. 1;* which is a record of contractions of the right ventricle of a decerebrate dog. After exposing the heart in the usual manner, the wall of the right ventricle is attached to a Cushny myocardiograph, so arranged that the contractions of the heart cause the recording lever to descend; the down-stroke in the record, therefore, represents cardiac systole. At the signal, represented by the break in the line immediately beneath the cardiac record, 20 mgm. of caffeine per kilogram were injected intravenously. There occurs an immediate increase, both in the extent of relaxation and of contraction; which would lead to an increase in the amount of blood discharged at each systole. The drug produces an increase in cardiac rate also; this not being apparent in the tracing. The cardiac effects, associated with vascular relaxation, would lead to a marked acceleration of the blood flow.

Tracing 1.

From such experiments on normal dogs, it has been assumed that caffeine is a valuable circulatory stimulant. Not only does the drug seem to have a favorable action on the circulation but it is also one of the most potent of the respiratory stimulants. This effect may be elicited either in the normal animal or in one where the respiration is depressed by the administration of some narcotic drug, such as alcohol, morphine, or hydrated chloral.



Tracing 2.

Because of the actions of caffeine on both the circulation and the respiration, the drug has been recommended as a physiological antidote for a number of narcotic poisons. Experimental evidence, in the case of alcohol and morphine indicates, however, that caffeine, instead of being of value actually lessens the chances of recovery. This surprising result raises the question as to how caffeine acts in order to increase the toxicity of the poisons that it was supposed to antagonize.

In the case of poisoning by morphine, it has been the common belief that the toxic action is manifested chiefly or entirely on the respiratory center; death being

due to failure of the respiration at a time when the circulation is little affected. The recent experiments of Schmidt, however, along with clinical observations that this author has been able to make, throw much doubt on this supposition and indicate that after large doses of morphine the circulation is comparatively early depressed; the progress of this depression playing a prominent part in bringing about death. Hale has shown that doses of caffeine which normally stimulate the heart of a dog will depress this organ, if given after a toxic dose of acetanilid; Pilcher suggests that caffeine and alcohol act synergistically to depress the heart when large doses are employed. Because of these suggestions and experiments, the attempt has been made to ascertain what the effect of caffeine will be in a variety of conditions where cardiac depression is present.

The simplest method of producing cardiac depression is by the use of some drug of constant composition and known action. In large enough doses, ethyl alcohol, morphine, or hydrated chloral will depress the heart; consequently, in the present investigation, these drugs were first utilized to "poison" the heart, if such a term is permissible in describing their cardiac action. Dogs were used exclusively. After the large doses of alcohol or chloral, no other anesthetic was necessary; where morphine was employed, anesthesia for operation was obtained by the perorbital injection of 10% magnesium chloride.

Tracing 3.

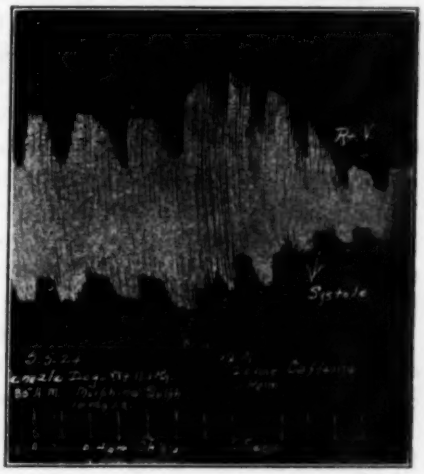
Tracing No. 2 illustrates the cardiac effects of 20 mgm. of caffeine in a dog that had previously been poisoned with ethyl alcohol. At 9:34 A.M., this dog received a subcutaneous injection of 10 mgm. of morphine sulphate per kilogram; 16 minutes later, she was given 8 cc. of ethyl alcohol per kilogram orally; this being about the fatal dose of alcohol. Three hours and a quarter after administration of the alcohol, the dog had been arranged for recording contractions of the right ventricle in the manner previously described; at this time she received an intravenous injection of 20 mgm. of caffeine per kilogram. Instead of the normal stimulant effect of this dose, it is seen that there occurred a very pronounced depression, which persisted for some little time; the heart never regaining the strength manifested before the caffeine injection.

According to Sollmann, Lentharz places the M. F. D. of morphine sulphate for the dog at 400 mgm. per kilogram. *Tracing No. 3* was a record of the injection of 20 mgm. of caffeine per kilogram after the subcutaneous injection of 200 mgm. of morphine sulphate per kilogram; the animal being anesthetized by the intracerabral injection of magnesium chloride and the contractions of the right ventricle recorded as in the other experiments. There occurs the initial stimulation of caffeine; this is soon followed by definite permanent depression.

With large doses of hydrated chloral, also, the subsequent injection of caffeine will still further depress the heart. This is illustrated by *Tracing No. 4*. The dog from which this record was obtained received a subcutaneous injection of 10 mgm. of morphine sulphate per kilogram at 9:35 A.M.; at 10:00 A.M., she was given 0.4 gram of hydrated chloral per kilogram orally; 2 hours later, the intravenous in-

jection of a dose of 20 mgm. of caffeine per kilogram lead to a pronounced and permanent depression of the heart.

If caffeine acts deleteriously upon a heart affected by these depressant poisons, it is, at least, possible that an unfavorable action may result from the use of the drug in some forms of bacterial infection. To test this out on animals is somewhat difficult; in doses which are quite comparable to those used clinically, it may be shown that caffeine shortens the life of guinea-pigs that have received a fatal dose of diphtheria toxin. If dogs are injected with fatal doses of diphtheria toxin, and are arranged for recording cardiac contractions as in the previous experiments, injection of caffeine may be followed by depression of the heart. It cannot be stated positively that this depression is due to the caffeine; the animals are usually in such poor shape as a result of the action of the toxin and the trauma of the operation that the heart soon ceases, even in the absence of caffeine medication. In some instances, the cardiac depression and administration of the caffeine are so closely associated as to lend strong support to the assumption that they are related as effect and cause. *Tracing No. 5* is illustrative example of this. It must be stated, however, that if the tracing is obtained at a time when the animal is in fairly good condition, caffeine administration is followed by a definite increase in the extent of the cardiac contractions; in other words, the action of the drug appears to be fully as favorable as in the unpoisoned animals. The question of the effects of caffeine upon animals poisoned by diphtheria toxin and by other bacterial products is now under investigation; at present, positive statements as to the results of caffeine medication in such cases cannot be made.



Tracing 4.

Tracing 5.

A NOTE ON THE EPHEDRINE CONTENT OF EPHEDRA VULGARIS VAR. HELVETICA.

BY PETER MASUCCI AND KO SUTO.

Chen[1] has studied the ephedrine content, the alkaloid in *Ephedra vulgaris* var. *helvetica*, and found it to vary from 0.018 to 0.091 per cent. These results were obtained on three samples assayed according to the method given in the U. S. P. IX under Belladonna Root.

Using the same method of asssay recommended by Chen, and the same factors, namely: one cubic centimeter of $N/10$ H_2SO_4 is equal to 0.016513 gram of ephedrine, we obtained a much higher content of ephedrine, from a sample of Ma Huang. The sample was from a small lot of drug shipped directly to us from China and indentified botanically as *Ephedra vulgaris* var. *helvetica*. The ash content was found to be 14.97%. The alkaloidal content was determined by two different analysts, who found 0.305 and 0.298% respectively.

Three fluid extracts were made from this drug using various amounts of alcohol in the extraction fluid. The fluid extracts were assayed using the same method and the alkaloid found was 0.3117; 0.4623 and 0.3060 grams per 100 cc.

Recently we had occasion to assay a sample of *Ephedra vulgaris* submitted by a dealer in crude drugs. This was found to contain 0.515% ephedrine.

The ephedrine content of the two samples of *ephedra vulgaris* assayed by us was so much higher than that reported by Chen that we think this is worth while recording in literature.

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August 17, 1926.

DIGITALIS STANDARDIZATION AT GENEVA.

BY E. A. BILHUBER.

The Health Committee of the League of Nations met early in September, 1925, at Geneva, and adopted reports from a committee on the biological standardization of certain remedies. This included methods for the biological standardization of digitalis and digitalis preparations. The reports by Dr. Gilchrist of Edinburgh, and Dr. Andrus of Baltimore, on the clinical comparison of samples of digitalis and its preparations were discussed and Professor Magnus presented memorandum on biological assay.

Professor Cushny dealt with certain difficulties which he had experienced in the application of a modified Hatcher method on the anesthetised cat, the results seeming to indicate that the cats fell into two classes, one with a definitely higher resistance to digitalis than the other. Cushny also laid stress on the methods of assay in which the frog was used as they may be expected to yield results of a high order of accuracy. Professors Pick, Straub and Rost all reported on the frog method as a valuable means of assay.

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[1] A Pharmacognostic and Chemical Study of Ma Huang (*Ephedra Vulgaris var. Helvetica*) K. K. Chen, JOUR. A. PH. A., Vol. 14, p. 189 (1925).

A sub-committee discussed in detail the various methods for the biological standardization of digitalis including, in addition to the methods using the cat and the frog, the Knaffl-Lenz guinea-pig method; the method proposed by Krogh, using mice; and the method of Mansfeld, using isolated fragments of the *sinus venosus* of the frog's heart. Their resolutions were unanimously accepted by the Conference.

These resolutions provided for the maintenance of a quantity of standardized powdered leaf of the digitalis purpurea. This standard is to be prepared by the mixture of ten different powders, made from leaves properly dried at 55–60° C., and adjusted by biological assays carried out by Professor Magnus. Its activity is to be tested annually and provision made for the upkeep of a full strength (=10%) powder in sufficient quantity. The preparation is to be distributed in sealed brown glass ampuls for international use.

The committee did not recommend any particular method of extraction as the only correct one.

As methods of biological assay the committee recommended as sufficiently accurate, both the frog method and the cat method as modified by Magnus from that of Hatcher. The preparation of the digitalis extract and frog method only will be given in detail as being of greater interest and it is suggested that it be compared with the U. S. P. one-hour frog method of standardization and its forerunner, the original Gottlieb one-half-hour frog method.

The report read:

"A. *Preparation of an extract of digitalis leaves with absolute alcohol.*

"One gram of digitalis leaves, coarsely powdered (B. 20 = mesh of about 0.75 mm.) and dried to constant weight over sulphuric acid, is allowed to stand for 24 hours at room temperature with 25 cc. of absolute alcohol, with occasional shaking in a closed spherical flask of about 100cc. content. The mixture is then boiled for 30 minutes with a reflux condenser, on a sand-bath over the smallest possible flame, and, while still hot, is filtered through a plain filter of about 9cm. diameter. The residue is washed with absolute alcohol on the filter until the filtrate becomes colorless. The combined filtrates are slowly evaporated in a thin-walled, tared watch-glass, on a boiling water-bath to 5 cc. (about 4.5 gr.), the drying of any portion being carefully avoided.

"The concentrated extract, while still hot, is transferred with the aid of distilled water to a graduated flask, and made up to 25 cc. with distilled water. By this procedure one obtains an emulsiform, greenish solution in weak, watery alcohol. This must be used immediately for the test."

B. *Assay of the extract, obtained as described under (A) on frogs, by determination of the minimal lethal dose by the so-called unlimited-time method.*

For the test only healthy male frogs must be used (grass frogs, *rana temporaria* or *rana pipiens*), kept under constant conditions and weighing up to 40 grams each. The body weight of the frogs, kept for several hours in the laboratory in a moist glass case, is determined immediately before the injection to an accuracy of 0.5 gram, after drying the skin and expressing the urine.

"The extract prepared as above described is injected into frogs, through the mouth, into the breast lymph-sac, with a syringe graduated in hundredths of a cc. Larger quantities than 0.3 cc., or with weakly active preparations 0.5 cc., should not be injected into the breast lymph sac; if necessary, the injections are to be made, in such cases, also into one or both of the lymph sacs of the thighs."

The following signs of intoxication appear: Within $^1/_2$-hour to 2 hours after the injection restlessness, air-hunger, formation of froth, paralysis and, in the course of four hours, stoppage of the heart. The criterion for the determination is that the stoppage is either systolic or rapidly transformed into systole.

The orientating tests are carried out as follows: Doses differing by 20 per cent per gram of frog are injected, one or two frogs being used for each dose.

The final determination can be made by the following procedure:

The mean between the smallest active and the greatest inactive dose is the first approximation. By further, more exact determination, with four to six frogs on each dose, the final value can be obtained with an accuracy of 10 per cent. The determination is completed when, of two doses differing by 10 per cent, the higher kills a majority of the frogs injected, the lower a smaller number. The value is expressed as a percentage of the standard preparation, which is tested at the same time and in the same manner. Only such leaves shall be passed for issue as differ from the standard preparation by not more than 25 per cent.

The assay of digitalis tinctures is made in the following manner:

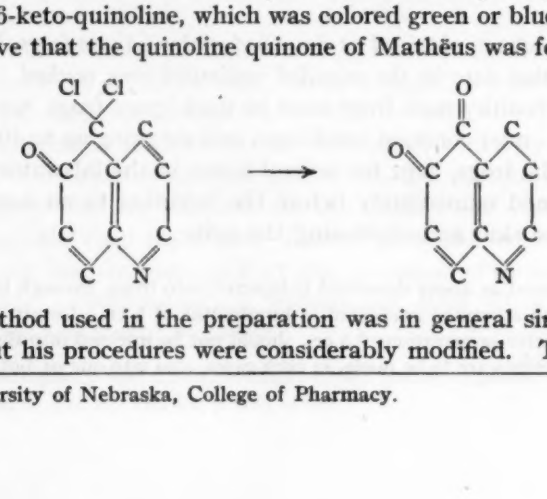
10 cc. of the official tincture (= 1 gram of leaves) are concentrated on the water-bath at temperatures not above 60° C. to 5 cc. volume, washed into a measuring flask with distilled water, and made up to 25 cc. The assay is made according to the same method as described above for digitalis leaves.

THE PREPARATION OF QUINOLINE ORTHO QUINONE AND ITS RELATION TO THE THALLEIOQUIN REACTION.

BY GEORGE W. HARGREAVES.*

In a previous paper (1), a study of the thalleioquin reaction, for the detection of quinine, was made and a new modification discovered which strengthened the view that a quinone is formed in the reaction. In order to shed further light upon the chemistry of this reaction, the preparation of quinoline *o*-quinone was undertaken.

Only two references were found to this body in the literature. The first was by Mathëus (2) who first prepared it, and the second by Fühner (3), who by passing chlorine into a cold solution of the hydrochloride of 6-hydroxy-quinoline obtained a 5,5-dichlor, 6-keto-quinoline, which was colored green or blue by ammonia and led him to believe that the quinoline quinone of Mathëus was formed intermediately:



The method used in the preparation was in general similar to that used by Mathëus, but his procedures were considerably modified. The series of reactions

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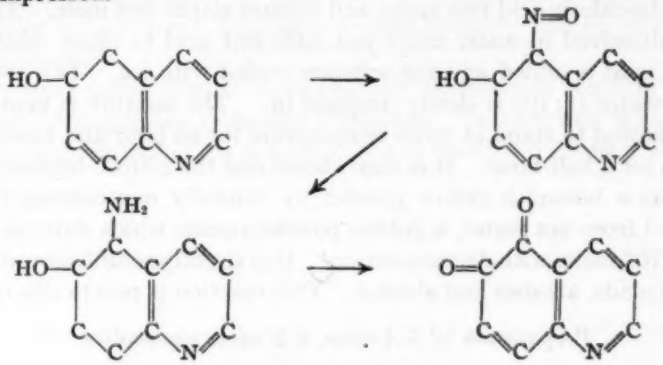
used is analogous to the preparation of beta-naphthoquinone, which is the naphthalene analogue of quinoline *o*-quinone, from beta naphthol, which is the naphthalene analogue of 6-hydroxyquinoline.

First, the hydroxy-quinoline was prepared by the Skraup method. This was then converted to the 5-nitroso, 6-hydroxy-quinoline, then reduced to the 5-amino, 6-hydroxy-quinoline, which was subsequently oxidized to the 5,6-diketo-quinoline or quinoline *o*-quinone. The relation of these compounds is readily seen when graphically expressed.



EXPERIMENTAL.

The Preparation of 6-Hydroxy-quinoline.

Use a two-liter round-bottomed Pyrex flask equipped with a long reflux condenser. Add first 86.50 grams of glycerine, then an intimate mixture of 22 grams of para amino-phenol and 17 grams of para nitro-phenol. Finally add 40 cc. of concentrated sulphuric acid.

Warm the mixture cautiously taking care to avoid overheating. The reaction is slow in starting but it finally takes place vigorously and with enough heat liberated to cause the mixture to boil spontaneously for some time. As soon as there is any evidence of a reaction, the heat should immediately be withdrawn. If the reaction becomes too violent it should be modified by wrapping the flask with a cold towel. A long efficient condenser is necessary at the start of the reaction or some of the material may be lost. When spontaneous boiling ceases, heat should be again applied and the mixture gently boiled for five hours.

Then allow the mixture to cool and dilute it with 850 cc. of distilled water. Let it stand for three or four hours with occasional agitation. Filter and purify the mixture by fractional precipitation using 40% alkali. Enough alkali is added to cause the formation of a dark precipitate but not enough to make the solution neutral or alkaline. Repeat this procedure two or three times, taking care not to add too much alkali. Then make the solution distinctly alkaline and then immediately make it slightly acid with acetic acid. At this point a dark sticky precipitate will often result and should be discarded. Finally, carefully neutralize the solution. A turbid brownish yellow solution will result from which the hydroxy-quinoline will settle out in about an hour. Collect the precipitate which will vary in color from yellowish to brownish yellow. The yields from this reaction are poor varying from 10% to 25%. The purification is difficult to carry out and until some experience is had with the reaction, part of the compound may be lost in this pro-

cedure. Dry and recrystallize from hot water. A yellowish brown powder is obtained. Above 140° this compound darkens and melts with decomposition at 185–6°. This action seems to be characteristic of this class of compounds. 6-Hydroxy-quinoline is slightly soluble in water and dissolves readily in alkalies, acids and alcohol.

Preparation of 5-Nitroso, 6-Hydroxy-quinoline.

This compound is prepared by using the proportions of 6-hydroxy-quinoline one mole, hydrochloric acid two moles and sodium nitrite one mole. The hydroxy-quinoline is dissolved in water using just sufficient acid to effect solution. Then the excess of acid is added and the solution cooled with ice. The sodium nitrite dissolved in water (1:10) is slowly dropped in. The mixture is kept cool for an hour, then allowed to stand at room temperature for an hour and finally heated on a water-bath for a half-hour. It is then cooled and the nitroso-hydroxy-compound is obtained as a brownish yellow powder by carefully neutralizing the solution. Recrystallized from hot water, a golden powder results which darkens above 140° and at 168–170° melts with decomposition. It is slightly soluble in water and readily soluble in acids, alkalies and alcohol. This reaction is practically quantitative.

Preparation of 5-Amino, 6-Hydroxy-quinoline.

Fourteen grams of the nitroso compound were dissolved in 100 cc. of 1:1 hydrochloric acid, treated with 60 grams of stannous chloride and heated on a water-bath for one hour. The mixture was then diluted with an equal volume of water and treated with alkali until it was just slightly acid. After warming, hydrogen sulphide was passed in until all the tin was precipitated. Upon filtering, a clear dark reddish solution was obtained. The amino body was not isolated but oxidized in the next step.

Preparation of Quinoline Ortho Quinone.

The solution of the amino body was evaporated to about a fourth of its volume, cooled and made distinctly acid with an excess of concentrated sulphuric acid. After heating the mixture almost to the boiling point, an excess of 10% ferric chloride solution was added, and at this point the clear solution was darkened. Upon cooling and standing several hours, a crystalline precipitate of the sulphate of quinoline ortho quinone was obtained. This consisted of small, olive-green, rhombic plates. Above 200° this compound darkens and slowly decomposes between 260° and 300°. It is slightly soluble in water and acids and dissolves readily in alkalies.

In order to show the relation of this body to the thalleioquin reaction, 1:1000 solution was made and tested with ammonia, sodium hydroxide and phenyl-hydrazine and ammonia.

A 5-cc. portion of the 1:1000 solution was colored dark greenish blue by 10% ammonia water. When this solution was diluted, with an equal volume of water it became deep blue and with further dilution, light blue.

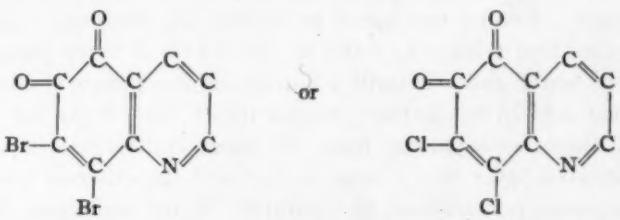
A few crystals dissolved in ammonia water gave a deep emerald-green solution which upon dilution became deep blue and then light blue.

Treatment of a 5-cc. portion of the 1:1000 solution with 10% sodium hydroxide gave a brown color. This action is analogous to a similar procedure with the thalleioquin reaction on quinine.

Treatment of a portion with phenylhydrazine and subsequently with ammonia failed to give a red color.

Later it was found that if a portion of the solution was treated with enough tenth-normal bromine solution to form the di-brom compound, the resulting solution behaved in the same manner as a quinine solution in the thalleioquin reaction. Treatment with chlorine solution gives the same results. On treatment with ammonia it gave the characteristic emerald-green thalleioquin color which did not turn blue upon dilution. On treatment with phenylhydrazine and ammonia a deep red color was produced, analogous to that given by quinine with the modified thalleioquin reaction.

These results would tend to show that the thalleioquin reaction is due to the formation of a halogenated quinoline *o*-quinone. Substitution takes place most readily in the benzene half of the quinoline ring so that the quinone probably has the structure of:



In order to get more evidence, Pollaci's (4) modification of the thalleioquin reaction was again tried. His method is to treat quinine with dilute sulphuric acid and lead peroxide, then with ammonia. It was found that the solution thus obtained was decidedly green but on further dilution became more and more blue in color. On treatment with sulphuric acid and lead peroxide, then with phenylhydrazine and ammonia, quinine did not give the characteristic red color. When the solution treated with sulphuric acid and lead peroxide was also treated with sufficient halogen, it yielded an emerald-green color with ammonia, and the characteristic red color with phenylhydrazine and ammonia.

Another strong piece of evidence was obtained by converting hydroxy-quinoline to quinoline ortho quinone by direct oxidation with sulphuric acid and lead peroxide. However, the details of this process have not been sufficiently worked out to warrant publication.

SUMMARY.

Quinoline *o*-quinone has been prepared and the dihalogen derivative is analogous to quinine in its behavior in the thalleioquin reaction and the phenylhydrazine modification of the thalleioquin reaction. The presence of halogen is necessary to obtain a permanent green color with ammonia or a red color with phenylhydrazine and ammonia. This behavior indicates that in the thalleioquin reaction, quinine first yields a halogenated quinoline *o*-quinone which is colored emerald-green by ammonia or red by phenylhydrazine and ammonia.

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ANALYSIS OF EMULSIONS OF COD LIVER OIL AND MALT EXTRACT.

BY C. S. WAGGONER AND C. C. GLOVER.

The increasing popularity of cod liver oil and malt mixtures as tonics has lead to considerable rivalry as to the relative merits of various commercial brands. All reported attempts at an analysis of these mixtures have been thus far rather inaccurate and unreliable.

The main difficulties encountered are, the fact that the oil gains weight on heating hence offers difficulty in securing constant weight; the selection of a suitable solvent for extraction and lastly, the breaking of the emulsion. Experiments on a commercial product of cod liver oil, showed an increase of about 10 per cent by heating to constant weight. Among the solvents tried were ether, petroleum ether (30–60° boiling), carbon disulphide, chloroform and ethyl acetate. It was found that anhydrous ether and low boiling petroleum ether worked best for the method developed. Alcohol was found to be best for breaking emulsions.

The procedure first tried is as follows:—To a two or three gram sample, add 250 to 300 cc. of water and stir until a homogeneous mixture results. Place in a separatory funnel, add 75 cc. of ether, stopper tightly and shake for five minutes. Let stand until the ether separates from the water and forms a layer at the top. Draw off the aqueous layer into a clean beaker and the ethereal solution into another. Place aqueous portion back in separatory funnel and repeat the above procedure four or five times collecting the ethereal solutions in a common container. This solution is then evaporated on a steam-bath until no odor of ether remains. The residue is then extracted with ether to remove the oil from any water or other impurities that may be present. It may be necessary to extract more than once with ether with intervening evaporations in order to obtain the oil pure. The oil is then dried to constant weight in a desiccator over sulphuric acid, weighed and the per cent of oil calculated.

By this method it was only possible to recover within about two per cent of the correct amount in known samples containing from 13.04 per cent to 25 per cent of oil. This method was then discarded and a new one developed.

The procedure for the second method is as follows; use four to six grams of sample, add 15 cc. of water and stir until homogenous mixture results, add 50 cc. of ethyl alcohol, place in a 250-cc. separatory funnel and shake until emulsion breaks, add 50 cc. of low-boiling petroleum ether and shake for a few minutes, draw off the hydro-alcoholic solution in a clean beaker and the ether solution in another. Place the hydro-alcoholic solution back into the separatory funnel and repeat the above procedure four or five times, each time placing the ether solution in a common container. Evaporate slowly on a steam-bath until the odor of petroleum ether has disappeared. Dry the oil in a desiccator over sulphuric acid to constant weight. Weigh and calculate per cent of oil present.

Some of the results of the above method on known samples are as follows:

Known per cent.	Wt. of sample.	Wt. of oil recovered.	Per cent by wt. of oil recovered.
13.04	5.0906 Gm.	0.6536 Gm.	12.84
13.04	5.5921	0.7130	12.75
13.04	4.6700	0.6033	12.92
		Average	12.83%

20.00	6.1457	1.1944	19.43
20.00	4.2126	0.8197	19.45
20.00	5.2736	1.0372	19.66
		Average	19.51%
25.00	5.3531	1.3177	24.43
25.00	4.6211	1.1247	24.34
25.00	5.6343	1.3680	24.28
		Average	24.35%

This method was then tried upon three commercial samples with the following results:

Product.	Wt. of sample.	Wt. of oil recovered.	Per cent of oil by wt.
A.	5.3610	0.9674	18.04
A.	6.0795	1.1107	18.26
		Average	18.15%
B.	4.4574	0.9270	20.79
B.	5.0787	1.0352	20.38
		Average	20.58%
C.	5.7873	1.2967	22.40
C.	5.5490	1.2274	22.12
		Average	22.26%

Since it is common practice for manufacturers to express the percentage composition of cod liver oil and malt mixtures by volume rather than by weight, attempts were made to convert the above results into percentage by volume. Great difficulty was experienced in accurately determining the specific gravity of the original samples due to the viscosity of the samples, the variability of the malt extracts and the amounts of air bubbles entrapped in the mixtures. No concordant results of per cent by volume have therefore been obtainable.

In summarizing the work here presented one may see that great care must be taken in the amount of heat applied to the oil, the emulsion should first be broken with ethyl alcohol and that the best solvent for the oil is low-boiling petroleum ether. By inspection of the column of the percentage of oil recovered from known samples it may be seen that the error increases with the percentage of oil present in the sample. Commercial products on analysis show about twenty per cent by weight of oil. To the results obtained on the twenty per cent known sample, one might add about 0.5 per cent to the analysis and obtain a very close approximation to the amount of oil actually present.

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THE COMPARISON OF VARIOUS CRUDE RUBBERS.*

BY J. F. PADULA.

The nature of the work outlined in this paper is merely a continuation and, perhaps, also a supplement in some parts of what others have done on crude rubber. Although much attention in rubber chemistry at the present time is being given toward obtaining a synthetic rubber that may equal raw rubber in quality, yet it would not be amiss to publish this paper as an aid to what the properties of a rubber are, towards obtaining a synthetic gum or rubber.

Rubber has been known in Europe since the days of Columbus. However, no investigation of rubber was undertaken until about the beginning of the nineteenth century. It is generally obtained from the process of coagulation of the latex contained in the laticiferous system of various species of tropical trees and shrubs.

Rubber, chemically, belongs to the class of hydrocarbons and is polyprene having the empirical formula $(C_{10}H_{16})_x$. The formula $(C_{10}H_{16})_x$ gives an idea of the complexity of the molecule of rubber.

There are three sources of rubber:

I. WILD RUBBER. II. PLANTATION RUBBER. III. SYNTHETIC RUBBER.

I. WILD RUBBER.—This comes from South and Central America, Asia, Africa and Australia. Their chief botanical orders are:

(*a*) *Euphorbiaceæ*—*Hevea brazilienzis* being the most important genus.
(*b*) *Apocynaceæ*—Mostly African plants.
(*c*) *Urticaceæ*—Tropical Asia, Mexico, South and Central America.
(*d*) *Compositæ*—Shrubs being grown scientifically in California and South Arizona, called Guayule-Rubber.

II. PLANTATION RUBBER.—This is obtained from Ceylon, Dutch East Indies, Federated Malay States, Pacific Islands and Borneo. The tree *Hevea Braziliensis* is the tree grown exclusively in these regions.

III. SYNTHETIC RUBBER.—This has been the dream of many rubber chemists. It has been made by various means. During the World War, Germany made synthetic rubber, but it was not very good, due to its becoming rapidly oxidized. There are two setbacks against synthetic rubber coming on the market at present, *viz.*, its high cost of manufacture, and its poor grade compared with a good natural rubber.

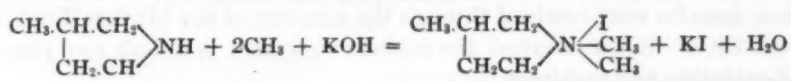
At about the beginning of the nineteenth century, chemists became interested in rubber and its uses. The first problem in rubber confronting chemists at that time was its constitution. About 1860, G. Williams (1) isolated isoprene, the active constituent of rubber, and stated that isoprene could be polymerized to rubber. Williams' (1) view regarding the polymerization of isoprene was supported by Bourchardat (2) and Tilden, in 1882.

These earlier workers obtained isoprene by the destructive distillation of crude rubber. Hlasiwetz (3) in 1876 had obtained isoprene by the pyrolysis of turpentine. Weber (4) in 1894 also isolated isoprene from rubber, and he also did much toward forming a system of analysis for rubber.

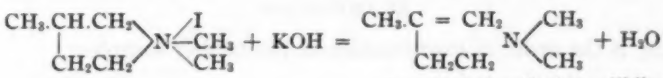
Tilden (5) was about the first chemist to give isoprene the constitutional formula of $CH_2=C(CH_3)-CH=CH_2$, β methyl isothylene (beta methyl divinyl). Euler (6) was able to produce β methyl divinyl synthetically and he showed it to be identical

* A thesis for the Master's Degree, Manhattan College.

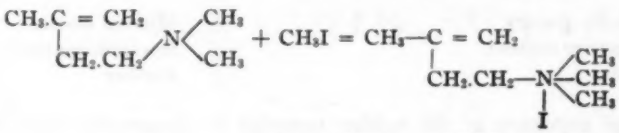
with isoprene. Euler's experiments were based on the reactions published by Ciamiciani and Magnagni. (7) Ciamiciani and Magnagni prepared divinyl from dimethyl pyrollidyl ammonium iodide on treating it with potassium hydroxide. Euler transformed the beta methyl pyrollidine into beta methyl divinyl as follows:



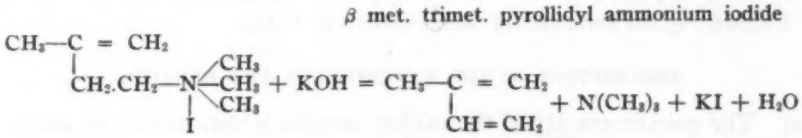
β methyl pyrollidine — β methyl dimethyl pyrollydyl ammonium iodide



β methyl dimethyl pyrollidine



β met. trimet. pyrollidyl ammonium iodide

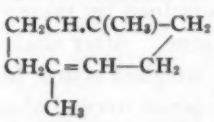


β met. divinyl

The following is the yield generally obtained by the earlier workers when working on rubber:

Isoprene	6.20%
Dipentene	46.20%
Higher boiling oils	43.80%
Carbonized residue	1.90%
Loss and mineral matter	1.90%
Total	100.00%

Harries (8) obtained by ozonizing natural Heves rubber, levulinic acid, and levulinic aldehyde. He concluded from these results that Heves rubber is a polymer of the di-isoprene 1-5 dimethyl cyclo octadiene 1.5.



The group $CH_2—C(CH_3)=CH.CH_2—$ is the real unit which polymerizes to ring complexes an unknown number of times. Advantage of this unsaturation is taken in the analysis of rubber, by the formation of addition products of bromine and chlorine.

Ostromislenski (9) describes his method of obtaining "rubber." He polymerized isoprene containing amylene or similar olefines, producing a sticky and soft rubber.

The samples of rubber used in this work are from Dutch East India plantations. They are:

1. Ribbed smoked sheets.
2. Rolled brown crepe, rolled back.
3. Thin pale crepe.
4. Standard clean thin brown crepe.
5. Rolled Ceylon sheets.

These samples were received through the courtesy of the Murbas Trading Co., New York City. When received, the rubbers were kept in a dark cool place so as to avoid oxidation and tackiness.

EXAMINATION.

Following is the order of examination of the rubber samples:

1. *Chemical analysis.*

(*a*)	Specific gravity	(*d*)	Mineral matter
(*b*)	Moisture content	(*e*)	Insoluble matter
(*c*)	Resins	(*f*)	Rubber

2. *Effect of exposure of the rubber samples to ultraviolet rays for 48 hours.*
3. *Viscosity of the solutions of these rubbers in* C_6H_6.

DESCRIPTION OF THE EXPERIMENTS AND RESULTS.

(*a*) The specific gravity of the rubber samples is determined by means of the pycnometer at 15° C.

(*b*) Moisture content is determined by drying a weighed sample in a vacuum desiccator over H_2SO_4, until a constant weight of the sample is obtained.

(*c*) Resins are determined by taking one gram of the finely cut rubber and extracting with C.P. acetone for six hours. The best means of extraction is by using a Wiley condenser and tube. A Gooch crucible containing the finely cut rubber is attached to the condenser. The condenser is slipped into the Wiley glass tube, the whole being warmed over a hot water- or steam-bath. At the end of six hours' extraction the samples are dried in a hot-air oven for one hour, then allowed to cool one-half hour in a desiccator and are weighed.

(*d*) The mineral matter is obtained by taking the dried and weighed extracted rubber and igniting over a low Bunsen burner until all the carbon is driven off, after cooling, the ash is weighed.

(*e*) Insoluble matter is determined by taking one gram of finely cut rubber, and dissolving in 100 cc. of benzene. After shaking vigorously to help solution, the mixture is filtered through a weighed coarse filter paper. The residue on the filter paper is dried for one hour in an air oven at about 80° C. The residue is cooled for one-half hour and weighed, the difference being the amount of insoluble matter. In this case the rubber solutions were kept in a dark cool place for one week shaken about 10 minutes every day. This insures solution.

(*f*) The rubber content is generally determined by difference. This method of finding rubber consists in subtracting the sum of the figures obtained for moisture, resins and insoluble matter (insoluble matters contain the ash), from the total. Another method which has found use for the determination of rubber is to take the soluble matter (in the determination of the insoluble matter) and evaporate the solvent. The residue on evaporation is considered as rubber. This method may be inaccurate, because of proteins being present.

A. Specific Gravities at 15° C.

1.	Ribbed smoked sheets	0.917
2.	Rolled brown crepe, rolled back	0.915
3.	Thin pale crepe	0.901
4.	Standard thin brown crepe	0.899
5.	Rolled Ceylon crepe	0.917

All the following figures are in percentage.

B. Moisture Content.

1	2	3	4	5
0.14	0.26	0.22	0.47	0.31

C. Acetone Extract (by difference)

1	2	3	4	5
2.55	1.60	1.98	2.64	2.44

Acetone Extract (by weight).

1	2	3	4	5
2.89	2.00	2.40	2.69	1.98

Average

1	2	3	4	5
2.72	1.80	2.19	2.67	2.11

D. Mineral Matter.

1	2	3	4	5
0.34	0.83	0.18	0.55	0.56

E. Insoluble Matter.

1	2	3	4	5
4.00	4.48	4.28	4.72	4.56

F. Rubber (by difference).

1	2	3	4	5
93.31	93.66	93.52	92.17	92.89

EXPOSURE OF RUBBER TO ULTRAVIOLET RAYS.

A piece of each sample about 10 cm. long, 4 cm. wide and 1 cm. thick was taken and exposed to ultraviolet light for 48 hours. The distance between the source of ultraviolet light and the samples was twelve inches. On examining the exposed surface of the samples after 4 hours a slight tackiness was noticed. This tackiness increased with the time of exposure. At the end of 48 hours the rubber samples were examined again. The ultraviolet rays had penetrated some of the rubber samples about 4 cm. showing that ultraviolet had a powerful action on rubber. Some of the samples were also "cracked," *i. e.*, they were full of small holes. This condition present in ultraviolet exposed rubber is one of depolymerization. On standing a while these rubber samples lost their elasticity.

Results of Exposure 48 hours.

1—Tacky. U. V. penetrated the rubber. Still flexible.
2—Very tacky. Was cracked. U. V. penetrated about 4 mm.
3—Cracked and penetrated by U. V. 2 mm. Dark yellow due to tackiness.
4—Not very tacky, was cracked and also slightly discolored on under sides.
5—Not tacky, quite resilient.

Two theories have been given regarding the cause of tackiness and cracking in crude rubber. One theory considers the rubber as oxidized while the other holds

that the rubber is depolymerized. The latter theory is concerned with the physical degradation of the rubber molecule.

Gorter claims that tackiness is due to an autoxidation of rubber. He also believes another cause is the change of degree of dispersion of the colloid. Spence, Schidrowitz and Whitby consider the tackiness of rubber as due to polymerization.

G. Bernstein (10) claims that there is first a depolymerization, and afterwards an oxidation due to the ozone formed in the air around ultraviolet lamps.

The theory of depolymerization, regarding crude rubbers exposed to ultraviolet light seems to be more accepted since Henri (11) in 1913 showed that when raw rubber in quartz vacuum tubes is exposed to ultraviolet rays, tackiness results.

VISCOSITY OF RUBBER SOLUTIONS.

The question of viscosity has been one of considerable interest to many workers. It has been held among various workers that a correlation between viscosity and the grade of rubber may be made. Viscosity at the present time is considered important due to the correlation between this factor and the nerve and strength of the rubber. The viscosity or viscous stress of the rubber solution has been taken as an index of the shearing stress of the strained elastic soluble rubber.

Schidrowitz and Goldsbrough, (12) Van Heurn, (13) and Van Rossen (14) have done much regarding the technique of measuring the viscosities of rubber solutions. Attempts were made to find some relationship between the viscosity of rubber solutions and their vulcanization properties. Schidrowitz (15) drew a curve through the value of the viscosity of the solvent at concentrations of X,X/2, X/4% (X = about 1). The two latter concentrations being obtained from the former by dilution. Then a tangent is drawn to the curve at a concentration of about 1%. This method although good in itself depends upon the personal equation.

Abernethy (16) uses the falling sphere method for determining the viscosity of rubber solutions. By using Stoke's law as a basis, he shows various figures for rubber solutions from 5 to 15%. In working with lower than 5% solutions the Ostwald viscosimeter is used. The drop-ball method seems to be promising in use.

The viscosity measurements are generally made in a benzene solution of rubber at 20° C. using the Ostwald viscosimeter. Viscosities of rubber solutions in chlorinated solvents are about twice the viscosity of the solvents of the same concentration in gasoline or benzene, but, after heating, all kinds of rubber solutions have about the same viscosity, cf. Kirchoff (17). A 10% solution of raw para-rubber in amyl acetate is fluid enough to filter through ordinary filter paper. Acetone is soluble in rubber to the extent of about 17%. Rubber may be precipitated from benzene or either solutions by the addition of alcohol or acetone. A good solvent for rubber is tetralin (tetrahydronaphthalene).

PRACTICAL WORK.

A simple method for the determination of viscosity of rubber solutions in benzene has been tried. The ordinary pipette was used in these viscosity determinations. A 1% solution of each sample was tried. These solutions were made up, were well shaken and were kept in a dark place for one week in order to effect solution, and to prevent oxidation. In order to obtain sufficient values for making graphs of the rubber solutions a number of viscosity determinations were run on each sample.

The pipettes used had a two-mm. bore at the outlet end and the same length of stem. Pipettes of various sizes were used so that sufficient numerical values may be obtained by which graphs can be drawn, and a better idea obtained regarding the particular solution. The viscosity of benzene was also taken as a comparison. The logarithms of the number of seconds were taken also to determine what type of graph is given by the logarithm of these values.

Following are the results obtained:

No. 1.			No. 2.		
Cc.	Time in seconds.	Logs. of seconds.	Cc.	Time in seconds.	Logs. of seconds.
10	6.87	0.813	10	4.16	0.619
25	19.87	1.298	25	15.66	1.195
45	35.76	1.5536	45	34.50	1.5390
90	78.00	1.8928	100	76.66	1.8851
100	86.00	1.9399			

No. 3.			No. 4.		
Cc.	Time in seconds.	Logs. of seconds.	Cc.	Time in seconds.	Logs. of seconds.
10	5.95	0.775	5	3.3	0.519
25	20.90	1.31	10	5.0	0.699
50	49.83	1.6969	25	19.0	1.2789
90	89.70	1.9524	50	42.80	1.6319
			90	76.98	1.8860

No. 5.			Benzene.		
Cc.	Time in seconds.	Logs. of seconds.	Cc.	Time in seconds.	Logs. of seconds.
5	3.87	0.588	10	2.83	0.4510
10	5.27	0.723	25	10.00	1.0000
25	19.76	1.2958	50	23.90	1.3780
30	28.90	1.4599	75	35.85	1.5549
90	86.94	1.9392	100	47.80	1.6795

It will be noticed in the graphs that the values for the rubber solutions are represented by straight lines. From 0 to 5 cc. it will be noticed that there is a slight curvature for each sample. In some cases, the values at certain points are away from the path of the straight line. This discrepancy may be due to: inaccuracy of the pipette, inaccuracy of the graph paper, or the personal equation in obtaining the results of viscosity.

The values of the logarithms show interesting results. The graphs of these logarithms trace the sides of a parabolic curve and intersect some point on the straight line. In the case of benzene the viscosity averages about half that of the rubber samples. The logarithm curve in this case does not intersect the straight line within 100 cc., but if more than 100 cc. were used in determining the viscosity of benzene, there would be a point common to both lines.

In dealing with the values of the logarithms it may be said that the accuracy on the graphs is to the second place to the right of the decimal.

CONCLUSIONS.

1. Chemical Analysis.

In discussing the results obtained in the chemical analysis it will be seen that

the specific gravities, with the exception of number four come within the values found by other workers for plantation rubber, *viz.*, 0.91–0.94.

The results of the extract by difference of the samples as shown do not all agree with the findings of acetone, extract by weight. There is an average difference of about 0.4 with the exception of number four. The latter findings are considered more correct since the results of acetone extract by difference most likely are affected, when the extracted rubbers are dried in a hot air oven, for one hour at 100° C.

The insoluble matter in each case appears somewhat high. This is due to the fact that benzene does not completely dissolve the rubber. The rubber content, as determined by difference, averages up to about 93% which amount comes well within the requirements of a good plantation rubber.

2. Exposure to Ultraviolet.

In the case of exposure to ultraviolet rays, it may be said that most rubbers are penetrated by them. These rubbers were attacked to the extent of producing tackiness and cracking (holes). When those exposed rubbers are stretched they tear and break, indicating thereby the loss of elasticity.

On taking some of the exposed rubber and rolling between the fingers a tacky spherical mass is formed. It has no resiliency and can be put into any shape without returning to its former shape.

The ultraviolet ray machine used in these experiments is the A. C. type Mercury Arc, manufactured by the Hanovia Chemical Company. The use of u. v. arcs in rubber chemistry has opened a broad field. Who knows but that it may be the medium of obtaining a suitable synthetic rubber?

3. Viscosities.

A 1% solution of the finely ground rubber was made up in benzene and kept one week before using. The values obtained indicate that they trace a straight line on graph paper, but the logarithms of these values trace the side of a parabola, and intersect at some point common to both lines.

It is possible, by finding some relationship between the equation of the straight line and that of the parabola that an index may be obtained regarding crude rubbers.

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Prof. H. H. Bartlett, of the University of Michigan, has been appointed honorary collaborator of the Smithsonian Institution; he will make a study of plant life in Formosa and Sumatra. Malay folklore is recorded on the joints of bamboo, while green; after drying the writing becomes permanent, unless destroyed by destructive means. The plant collections will be made in duplicate, one for the University and the other for the Smithsonian Institution

PHARMACY WEEK A PROFESSION WINNER.

BY EDWARD SWALLOW.

"Pharmacy Week," the wonderfully constructive idea of Robert J. Ruth, having for its purpose the bringing before the public of the scientific and professional side of the pharmacist's calling, will be observed during the week beginning October 10th this year.

This inspiration was hailed with enthusiasm by the great majority of American pharmacists last year and the first observance of "Pharmacy Week" was certainly a remarkable success. The second showing should be a 100 percenter, with every drug store participating. At heart every pharmacist loves his profession, otherwise he would not have entered it. Dean Charles H. LaWall pointed out in a recent article appearing in the *American Journal of Pharmacy*, under "Pharmacy in 1776," that "the pharmacy graduate of to-day possesses more scientific knowledge than the foremost savant of 1776." Further, he says, "our gifts have been more abundant and our opportunities and responsibilities greater." He asks, "Who would be so daring as to forecast the pharmacy of one hundred and fifty years hence?"

We, in the profession of pharmacy to-day, realize that our learning and scientific attainments are incomparably greater than those of the 1776 apothecary. But time and changing conditions have distinctly changed things in the drug trade of to-day; some of the old-timers sense this acutely and can hardly understand the modern methods of running a drug store. Generally speaking, the retail pharmacist nowadays has to be a mighty good business man in every sense if he wishes to make a success of his store. With the ordinary pharmacist it is a case of business before professional practice, or rather we might say, "business with professional practice," with the emphasis on the "business." Conditions are such, and naturally so in agreement with the times, that the druggist has to keep all kinds of side-lines whether he likes to or not. If he wants to make a decent living he must sell many articles entirely foreign to his calling. So it has come to pass that the purely commercial side of his business is more prominently before the public than his real professional and scientific part.

This status naturally leads the public to forget that the man within the drug store is in reality a professional man by reason of his attainments in science and special experience. Hence, while a druggist may be acclaimed as successful, such recognition is applied more to his business ability than his professional qualifications. These latter have been obscured overwhelmingly by pure business cleverness.

This condition of affairs puts pharmacy as a profession into the background, and prevents the pharmacist from being credited with the respect due to him for his special training and experience in compounding and dispensing medicines used by the public for the cure of diseases and the conservation of public health and welfare. The pharmacist should have this recognition as a professional man and would have had it if he had been careful to keep his scientific attainments always before the public—prominently before the public, in the same way that the medical and dental professions have done.

There seems to be, as it were, a wall built up before the public on the one side, and the professional pharmacist on the other.

Whether it has been his own fault or not, the public cannot see the pharmacist as a professional man; this wall of commercialism stops the view, nearly all the year around.

Now here's where "Pharmacy Week" idea comes in as a winner for the profession. Here, the pharmacist, every pharmacist in this great land of ours, can make this week one that will remove this wall, break a big hole in it permanently, so the public may see him as a professional man—know something of the knowledge which he has and appreciate him and his scientific services at their true value.

If a pharmacist wishes proper recognition as a professional man he must strive for it, work for it, think for it along intelligent up-to-date lines. "Pharmacy Week" offers this opportunity to all members of our calling, and it is earnestly hoped that all of the 53,000 drug stores in the United States will devote the week of October 10th forthcoming, to make known the science and special attainments required in the service of the public. The pharmacist knows in his heart that he is a pharmacist, a professional man all the time, but the public does not know this or realize it. "Pharmacy Week" gives every member of our calling a chance to win recognition as a professional man, and thus should be "put over" by the entire drug trade of America. Every man calling himself a pharmacist should "do his bit," and thus help himself and the calling to which he belongs.

WHOLE-HEARTED SUPPORT FOR PHARMACY WEEK.

It no longer is necessary to introduce Pharmacy Week to pharmacists. They know that it is a great opportunity to place Professional Pharmacy directly before the public for one week out of the year. The public will more fully understand the unique position which the pharmacist holds in relation to the public health, and the splendid service which he is capable of rendering, and it is to be expected that the public will not only more fully understand its pharmacist, but it will avail itself of his services to a greater extent and with a fuller appreciation. Pharmacists will find that in the future they will have a public to deal with which will be largely sympathetic as concerns protective pharmaceutical legislation, instead of having to confront an apathetic public or one which openly opposes every effort of the pharmacist to better his status and to conserve and protect the Nation's health. In fact the possibilities of Pharmacy Week as a great movement for the constructive betterment of pharmacy, and the beneficial results which may fully be expected to follow its observance, would seem to warrant the whole-hearted support of every person in the profession.—ROBERT J. RUTH.

Dr. Edgar Fahs Smith, former provost of the University of Pennsylvania, was awarded the Priestley medal for 1926, September 7th, at the 50th anniversary meeting of the American Chemical Society in Philadelphia. Dr. Smith delivered the Priestley lecture; the medal is awarded every three years. A pilgrimage was made to the grave of Priestley at Northumberland, Sunday, September 5. President L. L. Walton attended as representative of the AMERICAN PHARMACEUTICAL ASSOCIATION. (See pp. 583 and 596, July JOURNAL A. PH. A.

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

A SOURCE OF SELLING IDEAS.

As you look along the station platform and down Auburn avenue in Monkton, the first drug store you see is Abel's Modern Pharmacy. Mr. Abel often had wondered just how many salesmen had stood on that platform, seen his store and started toward it.

Some of these salesmen were veterans whom Mr. Abel knew personally. Others were inexperienced youths, quite obviously making their first trips. Because of the location of his store, Mr. Abel was reasonably sure that he was visited by many more salesmen than any of the other druggists in Monkton.

In spite of the onslaughts of tyros and veterans, Mr. Abel had always tried to remain alert and open-minded, ever regardful of new ideas and methods by which he could increase his business and his profits.

He was discouraged because he learned so little from all the army of travelers who visited him. One after another their greeting would be in this fashion: "Anything for Waykal to-day?"

The easiest answer in the world to such a question is, "No, nothing to-day." Mr. Abel, being only human, had made that answer many, many times. He often thought he detected a look of relief as the salesman picked up his unopened brief case and started for the door. Perhaps the salesman thought, as he mentally crossed Mr. Abel's name from his route list, "Well, that's over."

Only once in a long time was Mr. Abel visited by such a salesman as John Wright. John Wright represented the great pharmaceutical house of Marvel, Murdoch and Company. On his first trip to Monkton, Mr. Wright did not greet Mr. Abel with a conventional, "My name is Wright,—Marvel, Murdoch and Company, Chicago. Anything for us to-day?"

Instead he stepped to the soda fountain and politely asked to borrow a spoon. Into the spoon he poured a little milk of magnesia from a crisp, clean package he took from his pocket.

Then offering the spoon to Mr. Abel and putting the bottle on the fountain where Mr. Abel could see it, he said:

"There is the smoothest milk of magnesia that is made to-day. Just taste it yourself and see if what I say isn't true."

It would have taken an extremely strong-willed man to refuse such a request, so tactfully phrased.

"Yes, that is good," conceded Mr. Abel.

"A special process which we control exclusively," continued Mr. Wright, "makes it possible for us to produce a thoroughly homogeneous product. That's what makes the smooth taste that you liked."

With a start like this it was easy to interest even the most callous buyer. From milk of magnesia it was but a step to other distinctive products of the Marvel,

* Instructor of Merchandising, Wharton School of Finance and Commerce, University of Pennsylvania, Lecturer on Business Administration, Philadelphia College of Pharmacy and Science.

Murdoch line. John Wright was always careful to lay stress upon the points which made his products different.

Many things had happened in the busy Abel drug store in the week that elapsed before the Marvel, Murdoch order arrived. Mr. Abel happened to be out when the shipment was unpacked.

He was hardly inside the store, before his manager asked rather excitedly, "Did you order this milk of magnesia? We have 4 brands here now and we never have had any calls for this new one. I have been trying to cut down our stock instead of increasing it."

Without a word, Mr. Abel stepped to the soda fountain and poured a little of the new milk of magnesia into a spoon. "Murphy, there's the smoothest milk of magnesia that's made to-day. Taste it and see if you don't agree with me."

"That is good," conceded Murphy.

Mr. Abel smiled at his almost parrot-like repetition of the salesman's argument, but he knew now that Murphy believed in the new milk of magnesia.

That evening Dr. Harris stopped in for his usual chat. Apropos of nothing at all, Mr. Abel said to him. "Doctor, I have here the smoothest milk of magnesia you ever tried. Taste a little and see if what I say isn't true."

"That is good," the doctor admitted. "Whose is it?"

Mr. Abel's hopes of the doctor's patronage were rewarded the next morning when two of his familiar blue prescriptions appeared specifying Marvel, Murdoch's milk of magnesia.

It is needless to detail here additional occurrences which tell how the other members of Mr. Abel's staff and his professional friends became enthusiastic advocates of the new milk of magnesia.

The principle that this example illustrates is one which can be used time after time in any drug store. The arguments a salesman uses to convince a druggist of the merits of his goods are in turn the arguments which the druggist can use to convince his staff and his customers.

For instance, the fact that a druggist buys a line of hot water bottles because the seams are reinforced with 7 plies of new live rubber is just as convincing to his assistants and customers as it was to him.

If a druggist buys a bath brush because it is a bargain, the fact that the brush is a bargain will make an impression on the people in the store and the customers, just as it did on the druggist himself.

From this discussion I am sure you will recognize that the salesmen who call on you and sell you goods are an invaluable source of selling ideas. Unfortunately, however, worth-while ideas are obtainable from only a very few of the many salesmen who call on a retail druggist.

The situation is very much like placer mining. All the effort of sifting through pan after pan of dirt is rewarded by the little nuggets of knowledge which the alert druggist can recover from time to time and use for himself.

WHO PAYS WHEN THE SALESMAN WAITS?

There are druggists who rather pride themselves on their high and mighty treatment of the salesmen who call on them. They rather enjoy busying themselves with imaginary duties while a salesman waits for them to appear.

Some druggists have been heard to say that a salesman thinks more of a druggist when he has to wait to see that druggist. No one denies that the salesman thinks more of such a druggist, but what he thinks is another matter.

A salesman who has been kept waiting 15 minutes or half an hour feels very naturally that this wait entitles him to at least that much time to explain his proposition fully. By keeping the salesman waiting the druggist, more often than not, has obligated himself, tacitly, to hear the salesman's story.

Many times the salesman's entire story is not worth hearing and the druggist wastes time that he could have saved had he seen the man immediately and dismissed him at once. Of course there are times when it is absolutely impossible to see every salesman the minute he arrives, but the fact remains that salesmen promptly interviewed are promptly and satisfactorily dispatched.

There is another aspect to this question of interviewing salesmen promptly. Transport yourself for a minute to the office of the sales manager of a large pharmaceutical house. Here the sales manager sits anxiously scanning a sheaf of salesmen's reports. Eight calls a day this man averages, 7 for this one, 9 for another, so the reports read one after the other.

"When I was out on the road I found out why the average salesman spends only about one hour in his 7-hour day actually talking to customers. The rest of the time he is either traveling or waiting—mostly waiting—because we have our territories laid out so a man can get from one customer to another with a minimum loss of time. But this druggist won't see anybody before 11 and this man won't see anybody after 12. And in this store you can talk to the buyer only on Tuesdays and Thursdays. Add to that the natural crankiness of some druggists who keep a salesman waiting just because they know they have the salesman at their mercy.

"If our men only could increase their number of daily calls from 8 or 9 to 11 or 12 we could reduce our selling expenses by at least 20 per cent. It is telling no secret to say that that increase would make possible a 5 or 10 per cent reduction in our selling prices.

"But our men don't seem to be able to do it. The result is the druggist pays 5 to 10 per cent more for our merchandise because our salesmen can't see him promptly; they compel a man to come in 5 or 6 times when they could just as well reach a decision after one or two visits."

The sales manager is right. What he says is true not only of his company but of every company which sends salesmen to see the druggist.

The costs of distribution are tremendous, averaging for many commodities 50 per cent of the retail price. The only way these costs can be paid is by adding them to the price of the merchandise. Any action on the part of the retail druggist which increases the costs of selling merchandise to him he, himself, pays in the higher price of that merchandise.

SEASONABLE DISPLAYS FOR SEPTEMBER AND OCTOBER.

Stationery and school supplies
Fountain pens Mechanical pencils
Cameras and films
Developing, printing and enlarging
Spices and flavoring extracts
Soaps and bath supplies
Face creams and lotions
Brushes Hot water bottles

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

M. N. Ford, President, Columbus, Ohio. J. W. Gayle, Treasurer, Frankfort, Ky. Edw. H. Walsdorf, Chairman of Executive Committee, New Orleans, La. H. C. Christensen, Secretary, 130 N. Wells St., Chicago, Ill.

ACTIVE MEMBER STATES.

Alabama	Iowa	Montana	South Carolina
Arizona	Kansas	Nebraska	South Dakota
Arkansas	Kentucky	Nevada	Tennessee
Colorado	Louisiana	New Hampshire	Texas
Connecticut	Maine	New Mexico	Utah
Delaware	Maryland	North Carolina	Vermont
D. of Columbia	Massachusetts	North Dakota	Virginia
Florida	Michigan	Ohio	Washington
Georgia	Minnesota	Oklahoma	West Virginia
Idaho	Mississippi	Oregon	Wisconsin
Illinois	Missouri	Pennsylvania	Wyoming
Indiana			

CONVENTION OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY TO BE THE MOST REPRESENTATIVE EVER HELD.

By the time this Issue of the JOURNAL reaches its readers most of our members will be "all set" for the 1926 N. A. B. P. Convention at Philadelphia.

The Secretary's correspondence indicates that this will be not only the best attended but also the most representative convention we have ever had. Many of the Boards are sending all of their members to the meeting.

The Sesqui-Centennial International Exposition will be an attraction, and while the Convention will be full of interest, the work connected therewith will not be so arduous that attending members will not have ample opportunity to visit the exposition.

It is sincerely hoped that if there is any member who has not made plans to attend the Convention that he will pack his grip at the last minute and come on. Let us see how near to a 100% attendance of our States we can make this Convention. See you at the "City of Brotherly Love," September 13th and 14th.—H. C. C.

GENERAL NEWS ITEMS.

THE OWNERSHIP LAW AND THE NEW YORK COURTS.

All States contemplating ownership laws will be interested in a recent decision of the Supreme Court of the State of New York. Justice Ellis J. Staley delivered the opinion. The decision will be found under "The Pharmacist and the Law."

In essence, this is the point involved. An unlicensed person conducting a pharmacy at 41 Manhattan Ave. was dispossessed of his store by legal proceedings. He stored various merchandise from his store for the purpose of removing it to a new location. He later opened a store at 307 Warren St., City of Hudson, New York, and made application for a transfer of his store license to the new location. This the New York Board of Pharmacy refused to do. The owner then brought mandamus proceedings against the Board to enforce transfer of license. The Court sustained his contention.

A portion of the Judge's decision is of special interest:

It would be a very narrow and arbitrary construction of the exception to hold that if a particular drug store conducted by a person not a licensed pharmacist was destroyed by fire, or the property was condemned for the public use, or the landlord refused to renew a lease of the premises in which the store was conducted, that the privilege granted by the exception should thereupon cease and determine. All that was intended by the exception in question was, that the person who was conducting a drug store as an unlicensed pharmacist, in order to be permitted to go on with the business must continue to own and conduct a drug store not uninterrupted in the absolute sense. He continues the business uninterrupted within the meaning of the statute, even if he experiences temporary interruption, when he does not abandon the conduct of the business. Whether or not he abandons the business of conducting a drug store or pharmacy depends upon the circumstances and is a matter to be determined upon the facts of each case. If for example a building in which a drug store is being conducted by an unlicensed pharmacist is totally destroyed by fire, and it is impossible or impracticable for the druggist to continue business at that location, he would not be held to have abandoned the conduct of the drug business during a reasonable time required for him to adjust his affairs, obtain a new location and restock his store.

The same is true in relation to the situation of the petitioner. If he did not intend to abandon the drug business and with due diligence obtained a new location, he is entitled to a certificate of registration.

States drafting bills for ownership laws should exercise the greatest care in the wording of their bills. An adverse decision like the above always weakens a law in its entirety. As a rule, it is better that an ownership law should not be tied up with or included as a part of the pharmacy law, as one may kill the other. Simplicity in wording and intent should be the key-note of any ownership law or, for that matter, any other law.—H. C. C.

NEWS ITEMS.

Samuel C. Davis, Vice-President of the Tennessee Board of Pharmacy, was nominated for the Legislature at the recent primary of that State, winning by a safe margin over the machine candidate. In addition to being actively engaged in pharmacy and a member of the Board of Pharmacy, Mr. Davis is a member of the Executive Committee of the National Association of Retail Druggists, a member of the Board of Directors of the American Druggists' Fire Insurance Company, and active in both State and local drug associations in Nashville.

The many N. A. B. P. friends add their congratulations, and are glad that such a high honor has been bestowed on one of their number.—H. C. C.

SCIENTIFIC SECTION, A. PH. A.

Every member of a State Board of Pharmacy who attends the N. A. B. P. Convention in Philadelphia and remains over for all or part of the A. PH. A. Convention held during the same week, should attend the sessions of the Scientific Section. Not only will these sessions be found to be interesting, but much useful information which will be helpful in Board examination work will be gained.—H. C. C.

STATE BOARDS OF PHARMACY NEWS ITEMS.

Colorado.—The Board held an examination at Grand Junction, July 26th and 27th, but this copy goes forward too early to make a report of the meeting.

Donald F. Clifford who has previously been engaged in inspection work for the Board is again acting in that capacity and will give particular attention to the Western Slope. Mr. Clifford will ascertain what conditions exist in the various stores and call attention to any practices which are not consistent with the Colorado Pharmacy Law. In first violations of a minor nature, the Board expects the In-

spector to offer friendly advice as to how conditions may be bettered, rather than to prosecute.

The next Denver examination will be held at the University of Denver, September 24th and 25th; applications to take the examination should be on file at least ten days prior to that date. Applications and further information can be procured from Chas. J. Clayton, Secretary, 1627 Lawrence Street, Denver, Colo.

Illinois.—The regular August meeting of the Board was held in Chicago on August 17 to 20, inclusive. One hundred and fifty-nine candidates took examination for registration as Registered Pharmacists and 69 for registration as Assistant Pharmacists. Grading of examination papers has not been completed so the number passing cannot be given at this time.

The following named, appeared and were recommended for certificates as Registered Pharmacists by reciprocity:

David C. Butler and Arthur G. Wallace from Oklahoma; Grafton E. Clair from District of Columbia; Park K. Hagen, Carlton G. Lehman, Ernest Simpson, James E. Stein, Joseph Woloscheck and Wm. Gannon from Iowa; Taylor V. Hancock and Ben H. Wakefield from Indiana; Walter Sorley from Missouri; Joseph F. Magiera, Victor Thune and (Miss) F. M. Greenwalt from Minnesota; Victor Zur from Montana.

The next examination will be held in Chicago, October 26th to 29th, inclusive.

Kansas.—Examinations were held by the Board in Manhattan, Kans., August 4 and 5, 1926. Twenty candidates appeared for examination for Registered Pharmacist, out of which number, five were successful. One, out of a class of nine, succeeded in passing the examination for Registered Assistant Pharmacist.

Registration by reciprocity was granted to the following:

B. Vail Prather, basis of Colorado registration; Ben L. Rirkin, basis of Minnesota registration.

P. H. Klinkenberg of Ottawa, Kansas has been appointed by the Governor to fill the unexpired term of Roy P. Taylor who resigned. N. G. Edelblute succeeds Mr. Taylor as President of the Board.

The next examination meeting of the Board will be held in November. Applications and information can be obtained from A. H. King, Secretary, Manhattan.

New Jersey.—(Change of address for Secretary) Robert P. Fischelis, 235 E. Hanover St., Trenton, New Jersey.

Wisconsin.—The Board concluded its July quarterly examination meeting on the 23rd. Out of 61 candidates who appeared for examination, 19 passed the examination for registration as Pharmacists successfully, and seven were granted registration as Assistant Pharmacists.

Reciprocal registration has recently been granted to the following:

Victor B. Hoover, from Indiana; P. Jay Gilmer from Pennsylvania; Bernt O. Kyseth from Minnesota; Jonas R. Longley from Nebraska; Walter Mattson from Michigan; Albert J. Osweiler from Iowa; Daniel G. Clemmons, Louis H. Kopp, Leo L. McCarthy, and Herbert N. Nabers from Illinois.

The next meeting of the Board will be held beginning Monday, October 18, 1926. Address H. G. Ruenzel, Secretary, 2332 Vliet St., Milwaukee, Wis., for applications and information.

(For Roster of Board Members see Advertising Section.)

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

LET US START ANEW FROM WHERE WE ARE.*

BY FREDERICK J. WULLING.[1]

INTRODUCTION.

The title of my paper was chosen after some correspondence that followed Mr. Hebberd's invitation to me to be your guest-lecturer. The annual meetings represent a pause in our work for the purpose of reviewing and recording work already done and for mapping out programs for things still to be done, for our work is never finished. We start anew from where we left off or paused. Too many live in the past with only little thought of the future, but the future inexorably demands our present attention and requires our best effort at planning and organizing forward-going work. Every annual meeting is a mile-post from which we must proceed to the next. The procession goes on and must. No other way leads to accomplishment and success. My thought therefore is to point out or to emphasize work to be started or to be continued and for that purpose I will start right in to present my remarks in divisions or sections, each under a separate subheading:

THREE-FOLD COÖPERATION.

In most States there are three important pharmaceutical factors: a State Association, a State Board and a College of Pharmacy. Their respective activities vary but their ultimate purposes are identical, namely, the improvement of the calling leading to constantly better pharmaceutical service. For the fullest realization of these purposes the three agencies must work together harmoniously, cooperatively and whole-heartedly. In the degree in which they fail to do so they fall short of what can rightly be expected of them and pharmacy suffers in that measure. The efficiency of an organization depends primarily upon the quality and caliber of the men and women composing it. Capacity and ability, initiative and consistent aggressiveness, and especially administrative qualifications, all intelligently used, are necessary to-day more imperatively than ever before because of the growing complexities of our life and times. The individual is confronted everywhere with more and more competition and responsibilities. He overcomes these or succumbs to them according to his ability or lack of it. What he cannot do individually he must if he is wise, do collectively by working jointly and coöperatively with others. The recognition of this fact long ago led to the banding together of individuals into associations and organizations of many and varied kinds. *But the time has now come when associations must band together to form larger and more powerful units for meeting the needs and requirements and abuses of the day.* As the individual long ago found himself hopelessly infirm to do certain things alone and unaided, so now many associations find themselves unable to cope successfully with increasing problems. They therefore unit their forces and facilities for a common end. Loss of associational identity or merger of identity into larger units are not necessary in most cases, because every association, local, State and national still has primarily its internal and domestic functions to perform and needs to

* Address delivered to the Wisconsin Pharmaceutical Association at La Crosse, Wis., June, 1926.

[1] University of Minnesota.

affiliate or federate or possibly only coöperate with other associations in matters which affect them commonly. In my A. PH. A. presidential address in 1917 at Indianapolis I advocated strongly what is now being accomplished in part by the proposed erection of a pharmaceutical headquarters building. The headquarters will function more broadly and representatively when a strong and altruistic federation of all important pharmaceutical associations and interests will have been formed. The federation or its equivalent must and will come in due time. The present method of procedure is possibly the right one—time will tell. However, I do not want to discuss national pharmaceutical administration because that subject is too big and involved to treat adequately in an address of this sort, but the subject would be an interesting one for a separate address. I want to discuss briefly my proposal that the State association, the board and the college or colleges in every State coöperate in the fullest degree possible. This coöperation is already well established and effective in some States, but nowhere, as far as I know, is the working together as intimate and unselfish as it could and ought to be. The interrelations of the three factors are: (1) unfriendly or indifferent; (2) friendly but not coöperative; (3) coöperative but not so in the fullest measure possible. A gradual and noticeable improvement in the functioning of each of the three factors within their respective domestic scopes is happily going on. The State associations are growing in their realization of the responsibility growing out of their representation primarily of the functional aspect of pharmacy. This aspect is the most vital because it includes the culmination of all other activities in the direct service to the sick. The boards and colleges give indispensable service also, but in indirect and contributory ways. A pharmaceutical service, of varying degree of efficiency, has been given from time immemorial—certainly before there were boards and colleges. The associations are easily the most important of the three factors and they antedate the other two and brought them into being. It may consistently be said that American pharmacy has always governed as well as restricted itself and this it has done through its organizations. It is a matter of credit, not sufficiently recognized, that all pharmaceutical regulatory and restrictive laws have been initiated by organizations of pharmacists. The organizations produced the boards and in many cases the colleges, because these agencies were needed for the enhancement of pharmaceutical service. The boards were needed for regulatory and disciplinary purposes which the associations could not carry out, and the colleges became essential because the development and demands of pharmacy reached a point where more adequate training and education became necessary. Therefore in a broad sense the associations represent the three aspects of pharmacy: functional, regulatory, educational. In a narrower sense they stand primarily for the functional aspect and the boards and colleges more specifically for the regulatory and educational, respectively.

Having established the boards and colleges for specific but contributory purposes, what is the next upward step for the associations to take? My suggestion is that the associations now endeavor to unite with themselves the boards and colleges for the purpose of accomplishing by united effort and hearty agreement and collective endeavor what the separate factors cannot do individually. State pharmaceutical councils or conferences made up of capable representatives of the three factors, say of the executive committees of the associations, the entire mem-

bership of the boards, and the executive faculties of the colleges, would constitute advisory if not administrative bodies capable of giving most valuable and needed service in matters of common interest. It would be surprising to learn how many matters are of really common interest. While, for example, education is specifically in the hands of the colleges, education is of primary importance to the associations because education is fundamental to what the associations represent. Similarly the regulation of the practice now specifically restricted to the boards, is a function that grew out of the initiative of the associations and needs their continuous support for its affirmative exercise. I am fully aware of the fact that there are too many associations in all walks of life and that many of them are entirely unnecessary, but a council or conference of the kind I suggest would be not only desirable, but is becoming necessary. As I said before associations of councils, conferences and other organized bodies, rather than more associations of individuals, are the need of the day. That even informal and non-binding conferences are not only helpful but are becoming more and more necessary is witnessed by the joint meetings at the annual A. PH. A. Convention of the national association of the boards and colleges, which meetings are growing in scope and importance every year. In some States the coöperation suggested is already feebly begun. In my own State of Minnesota both the Board and the College present to the Association annual reports of their activities. A standing Association committee on the College is in more or less intimate touch with the College and has frequently been helpful in both advisory and material ways, especially after conferences. The Board and the College have had conferences in the past and the Board conducts its examinations in the College building. The Association Legislative Committee has occasional conferences with the Board and the College.

Time does not permit my developing this suggestion further. I leave it with you and other associations for what it is worth.

THE COMMONWEALTH FUND STUDY OF PHARMACY FROM THE FUNCTIONAL STANDPOINT.

This study is now completed and will be off the press by August, it is expected. Every pharmacist should read it carefully. It represents much work. Dr. Charters, whose very capable direction has made the survey comprehensive and valuable, allows me to quote from the address he gave at the Des Moines meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION:

> "No attempt has been made to estimate accurately the length of time it will take to complete a college course in pharmacy, yet if the student is to receive a cultural training and adequate instruction in both commercial and professional pharmacy, the length of time would not fall short of the customary four years."

In the following quotation Dr. Charters states specifically that pharmacy is a profession:

> "In a profession it is necessary to know not only the methods of performing the activities of the vocation; the principles and fundamental facts upon which the methods are based must also be mastered. It is necessary to know not only how to perform the activity, but to understand why the methods used operate successfully. If the fundamental principles are not taught, the vocation is not a profession; it is merely a trade."

Dr. Charters' report supports and endorses practically every upward educational step taken by pharmacy recently and it is my judgment standards will rise higher

because of the case the report makes out for better and higher training in pharmacy. Recently two colleges went upon a minimum four-year degree basis.

SELECTION OF ENTRANTS TO PHARMACY.

Let me quote President Johnson of the Minnesota State Pharmaceutical Association:

"One of the essentials for the more rapid rehabilitation of the profession of pharmacy is the selection of the right sort of recruits. The heretofore free and easy access to the calling of pharmacy has resulted in the influx of a greater number of commercially-minded than professionally-minded recruits and it is undeniable that the commercially-minded in pharmacy are in all too many cases at least indifferent to the general as well as to the specific obligations to render professional pharmaceutical service in return for the privileges and protection inherent in licensure. The people, through their legislatures, have given the pharmacists the exclusive privilege of practicing pharmacy and have protected the pharmacists against all others who may desire to carry on pharmacy. For this exclusive privilege the people or the public have a right to the kind of service the state intended the pharmacists should render. Many pharmacists are not meeting this expectation. The question whether their not doing so is not justifiable, can be raised in many cases but not in most. It may be that some time one of the phases of the present transition will assume the form of legislative compulsion of this expectation. In cases where pharmacists do not meet the expectation, there seems to me to be no excuse for license or the special privileges which they enjoy. Most of the colleges, state boards and state associations have these matters in mind and evidence is multiplying that efforts are increasing to improve the quality and standard of student material. Some colleges are now requiring certificates of good moral character from their matriculants and from a number of communications I have recently received, I learn that some state boards are now requiring similar certificates. It may be that before very long the state boards will exercise their power, which I believe is an inherent and implied power, to require all prospective students or others who desire to enter pharmacy to subject themselves, before being admitted to the practice of pharmacy, to adequate tests to determine their fitness for and their affirmative value to pharmacy. What these tests ought to be in detail, could easily be worked out but they should primarily reach to the intellectual capacity, moral character and attitude toward professional service of the applicant. Many undesirables could be headed off thus early. This would be an act of justice not only to pharmacy but to the respective individual. The present custom of waiting until the applicant is ready to take his examination for license, should be supplanted by a better and more equitable procedure such as the one suggested, which begins at the beginning."

The quality of service a profession can render and its standards and ideals and the recognition accorded it by the public depend primarily upon the quality and integrity of its practitioners. If public recognition and esteem were based solely upon responsibility involved in the practice, pharmacy would share more adequately the esteem in which medicine and its specialties are held. Pharmacy has not maintained standards, as medicine has, commensurate with the responsibilities involved in its practice. Pharmacy has fallen short in the past in not having been sufficiently selective and discriminating with regard to the caliber and quality of its entrants. The various associations of pharmacists represent pharmacy at large. In that capacity they have done fairly well in securing helpful legislation and regulation but these have not sufficiently safeguarded the calling from the influx of persons lacking in integrity and in devotion to the high aims and purposes requisite of every devotee of pharmacy. Too many pharmacists still deny any obligation to their profession as a social group. They measure everything in terms of self-interest and advantage and refuse or fail to contribute anything to the common welfare of the group. In this respect, too, conditions have become some-

what better but the process is too slow. A pharmacist is either an asset or a liability to his profession. Everyone should be an asset and it is now more than ever necessary to consider and judge every applicant for admission to pharmacy in the light of the question: Will he become and remain loyal to the highest ideals and standards of the profession? Every reasonable precaution should be taken at the time the applicant approaches the portals of pharmacy. When he has entered, it is too late. It is the business and duty of pharmacy to make known in definite and understandable ways just what it rightfully expects of recruits and what its terms of admission are. At present the only requirement is the passing of the State examinations. This test does not include any inquiry into the suitability of the applicant to the practice, nor into his moral and character qualifications, nor into his general attitude toward life and especially toward pharmacy. The intellectual test involved in the technical board examinations is an almost elementary one. The boards and the colleges could well unite with the State associations toward more inclusive admission requirements. If a consistent and fair selection, such as I again advocate and recommend had been employed years ago, pharmacy would be much better off now, and I believe many of its vexing and difficult problems of to-day would have been avoided. Here is another point from which to go forward. Such selection would be justifiable especially in the interests of those who need pharmaceutical service.

STATE ASSOCIATION SECTIONS.

Many national associations conduct portions of their proceedings through sections. The only State association doing similarly, as far as I know, is the Minnesota association which established, upon my recommendation over twenty years ago, a Scientific and Practical Section. This Section has done notable work and has placed the Minnesota Convention into the highest association rank, according to claims by others than Minnesotans. The Section occupies a full third of the convention time. Most of the talent on its programs is furnished by association members, and usually it presents a leading, nationally known pharmacist. It furnishes an open forum for the discussion and ventilation of pharmaceutical problems, appeals to all members, not only to the purely professionally-minded and is always well attended.

HISTORICAL SECTIONS OR COMMITTEES.

Those who do library research and others, find a paucity of accurate pharmaceutical historical material. The recording of exact facts and dates relating to the pharmaceutical development or history of our States and nation could well be done by State associations in their respective localities through committee or section work. Under proper organization and direction the recording of historical facts is an easy matter. The assistance of historical societies everywhere, could no doubt be had by pharmacists for the asking. A very few associations already have historical committees. All should have them. The A. PH. A. Historical Section established several years ago is doing creditable work.

HOSPITAL PHARMACY.

Hospital pharmacy and hospital pharmacists are without sufficient recognition. That they are entitled to more attention was recognized by the Minn. State Pharm.

Assoc. when at its last meeting it created a Committee on Hospital Pharmacy and placed a well-known young woman in charge. All State associations should have similar committees. There is much work for them to do. A good paper on the subject was recently written by Miss Frances Greenwalt and was published in the JOURNAL OF THE A. PH. A. (May 1926, p. 394). The paper wil appear in the forthcoming 1926 Proceedings of the M. S. P. A. Every pharmacist should read the paper and then lend his help to carry out some of the suggestions made.

BUILDING UP A PHARMACEUTICAL BUSINESS ON SCIENTIFIC LINES WHERE COMPETITION WILL FIND IT DIFFICULT TO FOLLOW.

A paper bearing above title and written by Mr. David F. Jones of Watertown, S. D., and published in the JOURNAL OF THE A. PH. A. (May 1925, p. 424) and in the Proceedings of the M. S. P. A. for 1925, is one of the most helpful to be found in the recent pharmaceutical press. Mr. Jones starts out by saying, "there are not enough people passing the average drug store in the Northwest to tempt any thoroughly prepared and thoughtful person to spend the major part of his or her time in merchandising." He then makes out a complete and convincing case for the professional pharmacist. I highly recommend the reading of this paper.

SO-CALLED COMMERCIAL PHARMACY.

There is really no commercial pharmacy. Pharmacy is a major medical specialty and has been recognized as such for centuries. The fact that a pharmacist engages in trade does not make out of the practice of professional pharmacy, in which he may engage only part of his time, a commercial activity. A person called a pharmacist may devote a portion of his time to professional practice and another portion to commerce. The two activities are separate and distinct even if they are practiced by one person. Professional practice by a person adequately trained professionally does not become commercialized if the practitioner engages in trade any more than trade becomes professionalized if carried on by a Registered Pharmacist or by any other professional practitioner. Conduct of commerce and the practice of professions are separate activities or vocations and ought to be carried on respectively by persons who are willing to devote their entire time to the one or to the other. The one is as respectable and as necessary to society as the other. There is therefore no commercial pharmacy any more than there is a commercial medicine.

The dual activities of the average present-day pharmacist are excusable in many cases and commendable in some. But the over-commercialization of the many drug stores of to-day does not have the approval of the medical profession nor of a very respectable number of pharmacists. In many cases what is euphoniously termed an economic development is really a commercial exploitation of pharmacy and is based largely on the ease with which pharmacy has allowed itself to be invaded and utilized. This exploitation is entirely devoid of any of the altruistic and idealistic aspects that characterized the profession of pharmacy and medicine, and on that account tends in a very marked degree to depreciate the standing of the average pharmacist in the esteem of the public and in no less degree has a distinctly negative effect upon the pharmacists themselves. This fact has been recog-

nized by the thinkers and serious-minded in pharmacy for some time. In the long run no one can successfully serve two masters, and the person who wants to be a professional practitioner and a merchant at the same time will sooner or later have to give his undivided time and loyalty to the one or to the other. Many are doing that very thing now. Some pharmacists have entirely abandoned their professional practice and are devoting their entire time to commerce. Some of these have called their stores drugless drug stores, but have been enjoined by law from the use of that designation. Others are giving up trade and devoting their full time and energy to professional practice. Pharmacies, in the thorough sense of the word, are growing in numbers and in dignity and are hailed with delight by the sick as evidenced by the increasing business of most of them. This transition, which got fairly started only recently, will gain momentum from now on for obvious reasons, the first one being the growing demand from the public for more specialized and respectable and undiluted professional service. The wise and careful pharmacist will take this fact into consideration henceforth, more seriously than he has done in the past. There are many more drug stores than are necessary to give the needed pharmaceutical service. According to a recent estimate, professional service that could be given by 100 pharmacists devoting their entire time to professional practice, is now given by between 500 and 1000 pharmacists. All must make a living and a profit, and the living and profit of all beyond the necessary 100 is made through trade. If this trade were separated from professional practice, it would be carried on in some way by others and the public would have as good or better service than it has now with respect to the commerce value of this illustration, and certainly the public would be much better off if its pharmaceutical services were restricted to the 100 pharmaceutical specialists.

THE NEW REVISION OF THE PHARMACOPŒIA SHOULD BE BROUGHT TO THE ATTENTION OF PHYSICIANS.

Those who will make inquiry will find that many physicians are without the Pharmacopœia and hence are not using it as a basis for their prescriptions to the extent that could be expected. Because of the recent appearance of the new revision the present time is a good one for pharmacists to try to interest physicians more in the one work with which they should become more familiar and upon which they should rely and realize more fully than they do. I know of pharmacists who presented copies of the new edition to their physicians with mutually profitable results. Pharmacists could point out and emphasize more fully the safe-guard the pharmacopœia is to the physician and his patient. The greater skill, and the greater accuracy, which the new revision demands of the pharmacists should be brought to the attention of physicians, who could find in a study of the improvement in the many tests and assays, including the biological, evidence that pharmacists are really the efficient and logical allies of physicians in their responsible work of helping and restoring the sick. I believe physicians could be made to realize that they really cannot afford not to utilize in a more measurable degree the help and coöperation of the pharmacists and to employ the many advantages a good knowledge of the Pharmacopœia affords. The Pharmacopœia is not a guide exclusively for pharmacists, but for physicians as well, as is evidenced by the important part physicians take in its revision.

FELLOWSHIPS AND SCHOLARSHIPS.

As a member of the Administrative Committee of a large University I am in a position to know that other fields of learning and professions are much more richly endowed with fellowships and scholarships than pharmacy is. Other professions realize more than pharmacy does that all fields of learning need more peaks, that is, a larger number of much more highly and specially trained men than the average; leaders to whom the calling could look in the future for guidance and direction. Many worthy and exceptionally capable young men, and lately also young women, would go onward with their training if their means permitted. The calling becomes the beneficiary of the intellectual and practical contribution of every highly trained member. To increase the number of the latter is the part of wisdom. Heretofore a limited number of ambitious and forward-looking students have developed their capacities to a high degree on their own resources. But there are not enough of these. A few more, worthy but not sufficiently well-to-do, are encouraged by appointments to very limited numbers of scholarships or fellowships. In the establishment or endowment of a much larger number of the latter, opportunity is offered to those who can afford it to give a valuable service to pharmacy and also to the recipients. Possibly the time will come when pharmacy will look upon this matter in a business way and will deliberately create funds for the furtherance in every college of research and graduate work. That time is not yet at hand, but the ranks of pharmacy surely contain many generous and sufficiently wealthy to hasten the time.

DISTRICT AND SECTIONAL MEETINGS.

Get-togethers, conferences, talks across the table, all, if carried out in the right spirit, are conducive to understanding and good fellowship, and in a large measure are the best solvents of our problems. They are the methods that characterize and embody the brotherly and democratic spirit which actuates our people and our glorious nation. District Meetings must, therefore, commend themselves to all of us. I notice that your program includes a discussion of the District Meeting idea by Mr. Treadwell who has made a practical and successful test of them. No one whom I know can better present and explain the idea, so I will say no more on the matter than to advocate its sympathetic study by you.

REGIONAL MEETINGS.

If the District Meetings are found to be useful and fruitful within a State, the sectional or regional meetings representing contiguous or related States should also prove of value. Some such meetings have already been held with good success and a further study of them is advisable.

THE ALCOHOL AND RELATED QUESTIONS.

I have been asked to say something on this question. You can best understand my attitude toward it when I say that I am not convinced that liquors are indispensable medicinal agents. Their inclusion in our materia medica has caused so much trouble and confusion and has reacted so negatively upon the esteem in which pharmacy is held by the general public that I cannot see a corresponding advantage in their retention. I would not go as far, however, as those go who ad-

vocate getting along entirely without alcohol. There is as yet no reliable substitute for alcohol in the manufacture of certain valuable medicinal preparations of undoubted therapeutic merit, even though some flavors and perfumes formerly made with alcohol are now made without it.

PHARMACEUTICAL BULLETIN BOARDS.

The Boards and Bulletins gotten out and distributed to pharmacists by the Northwestern Pharmaceutical Bureau are to be commended. Every drug store would be giving a better service and would increase its business by securing the Bulletins and displaying them prominently upon the Board.

SHOULD THE PRACTICAL DRUG STORE EXPERIENCE REQUIREMENT BE ABOLISHED?

At the February 1926 meeting of the Minnesota State Pharmaceutical Association, President Johnson in his address, expressed so well my own feeling in the matter that I cannot do better than to quote him:

"If I am not mistaken President Crosby last year included a reference to this matter in his presidental address. There is no decided and organized effort as yet to abolish the requirement, but the question is receiving more and more attention. The practical experience requirement was quite necessary under the preceptorial system, but as there are no longer preceptors and apprentices and since the burden of training incoming pharmacists is being placed more and more fully upon the colleges, the question no doubt will receive increased attention as time goes on. It is my conviction, however, that the time has not yet come for abolishing the requirement. This is an age of canned goods, ready-made things, button-pushing and a general demand for more comfort and less responsibility. The pharmacists who share this spirit are becoming more and more unwilling to bother with even a minimum of advice or instruction to the young recruits to pharmacy but are expecting the colleges to hand over to them fully trained and experienced graduates. Dean Wulling was telling me of a case of a pharmacist who buys everything he sells and who wrote on one of his printed order blanks and sent on to the Dean the following order: 'When your class graduates next June send me one fully qualified man who is willing to begin at a low salary but who can take charge of my store while I make a ten-weeks' trip to Europe leaving July 1st.' In other words this pharmacist ordered from the College of Pharmacy an article necessary in the conduct of his business just as he sends orders to the jobbers for required commodities. While this seems like a joke, the pharmacist was serious and I mention the instance only because it is illustrative.

"Now, to my old fashioned way of thinking, certain experience necessary for the right conduct of even the average modern drug store can be acquired only in the drug store itself. This is said with no disparagement to the colleges."

FOUR-YEAR MINIMUM COURSES FOR DEGREES IN PHARMACY.

I have written and said so much in advocacy of such courses, that I must not weary you with repetition, but I should bring to the attention of pharmacists everywhere that not only certain faculties, but many practicing pharmacists favor such courses. In Minnesota, the pharmacists through their State association joined the faculty in asking the University as long ago as 1919 to make the optional four-year course the obligatory one. The University Regents granted the request two months ago at their April meeting. The University of Ohio went on a minimum four-year course basis last fall and other universities are working toward the same end.

RESEARCH IN PHARMACY.

Retail pharmacists do very little research. They could do more, but they let "George do it," with the result that many possible contributions are lost to phar-

macy. I should urge all who have not already done so to read a recent address on "Pharmaceutical Research," by Dr. H. V. Arny, Chairman of the National Conference on Pharmaceutical Research, and published in the current pharmaceutical journals. The address is comprehensive and inspiring and will convert any reader to the necessity of contributions on their part to research.

INCREASING THE COLLEGE PREREQUISITE TO THREE YEARS.

The two-year prerequisites on the statute books of many States were placed there to correspond to the two-year courses of the Conference Colleges. Now the Colleges, with the support of the National Association of Boards of Pharmacy, have gone to a three-year basis and logically the prerequisite States, and all others it is to be hoped, will now amend their laws accordingly. It is interesting to know that the Minnesota State Pharmaceutical Association has already instructed its Legislative Committee to seek such an amendment at the next legislative session early in 1927.

PROFESSIONAL STANDARDS.

I have already referred to professional standards in other divisions and I need say further only that associations could do much to uphold standards by creating standing committees to whom could be entrusted the maintenance and upbuilding of professional ideals and practice and the observance of professional dignity commensurate with the responsibility and high service aims of the calling. Such committees could well stimulate greater adherence to such codes of ethics as that of the AMERICAN PHARMACEUTICAL ASSOCIATION and which I warmly commend to all pharmacists.

BUSINESS STANDARDS.

Most druggists of to-day are not good business men. For their professional practice they have had a training represented in its minimum degree by the Board Examinations, and while improvement in that respect is still necessary, the public is fairly well protected against professional incompetency. But in the commercial aspect of the average druggists' activities special training has not been thought necessary and as a result druggists find it difficult, as a rule, to compete successfully with business based upon a special training. Self-interest would indicate the desirability and even the necessity of a preparation on part of the druggists for the most advantageous conduct of the commercial end of their activities. Druggists trained in modern and approved and tested business methods have found that the time and money expended in such training has been a most profitable investment.

PHARMACISTS AND PUBLIC HEALTH.

Pharmacists with physicians have always contributed much to public health through a service helping to restore the sick to health. Public health aims to keep the well from becoming sick by prevention methods. Much of the service given by pharmacists is concerned with prevention so the service is now to the well and the sick. The drug store can become more of a health agency that it already is and pharmacists, by virtue of their training, can efficiently help public health in many ways, which time does not permit to enumerate, but which will suggest themselves to all who give the matter thought and attention.

CONCLUSIONS.

Now to summarize: We could start to do the following things:

Encourage the coöperation and team work of the associations, colleges and boards;

Study thoroughly the Charters' Study of Pharmacy from the functional standpoint and create therefrom a program for the rapid rehabilitation of professional pharmacy;

Select more carefully those who are to be admitted to pharmacy;

Create sections in associations to organize and accomplish more effective work within the associations;

Pay more attention to the classification and recording of pharmaceutical history;

Give hospital pharmacists their merited recognition, standardize their ranks and admit them to the councils of pharmacy;

Build up pharmaceutical business on scientific lines where competition will find it difficult to follow;

Enlist the interest of physicians in the new revision of the Pharmacopœia;

Promote the establishment of a greater number of fellowships and scholarships;

Try out the district meeting idea;

Try out the regional meeting plan;

Display the Northwestern Pharmaceutical Bureau Publicity Bulletins;

Study the Drug-store Experience requirement in the light of the present day;

Encourage higher training in pharmacy;

Do more research;

Increase the college prerequisite to three years;

Establish effective standing committees on professional standards;

Encourage business training for the druggists who devote themselves primarily to trade;

Take greater part in public health activities.

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON PATENTS AND TRADEMARKS.*

BY F. E. STEWART, CHAIRMAN.

Your committee, in previous reports, has presented the following incontrovertible facts—incontrovertible because supported by the Constitution of the United States; also by the copyright and patent laws founded thereon; also by the decisions of the Supreme Court:

"Any article of manufacture, unless it be protected by a patent, may be made and sold by any person. (Report of Commission appointed under Act of Congress approved June 4, 1898, to Revise the statutes of the U. S. relating to patents and trademarks, trade names, etc., Senate Document No. 20.)"

"An inventor has no right to his invention at common law. He has no right of property in it originally. The right which he derives by patent is a creature of the statute and of grant, and is subject to certain conditions incorporated in the statutes and in the grants. (A. M. H. & L. S. & D. Mach. Co. *vs.* Am. Tool & Mach. Co., 4 Fisher's Pat. Cases, 294)."

The patent law requires that "the invention shall be *new* and *useful;* that the device, manufacturing formula, method or design for which he seeks protection is not known or used by persons other than the inventor; has not been patented in any country before, and is not in public use or on sale or has not been two years prior to the application for patent."

The statute enacts, that, "Before any inventor or discoverer shall receive a patent for his invention or discovery, he shall make application therefor, in writing, to the Commissioner, and shall file in the Patent Office a written description of the same, and of the manner of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms, as to enable any person skilled in the art or science to which it appertains, or with which it is most closely connected, to make, construct, compound, and use the same; and in case of a machine he shall explain the principle thereof, and the best mode in which he has contemplated applying that

* Des Moines meeting, 1925.

principle, so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination, which he claims as his invention or discovery; and said specification and claim shall be signed by the inventor and attested by two witnessess."

"Upon conforming to established procedure and paying the required fees, an inventor in the United States is granted the exclusive right to make, use, and sell his invention or discovery throughout American territory for 17 years. In the case of a design the period of protection may be 3½ years, 7 or 14 years, as the dealer may elect."

Names of articles of commerce can neither be copyrighted, patented, nor trademarked. No right of ownership in a name is granted by registering it as a trademark. The trademark law is not a law for *creating* trademarks. It is a law for *registering* trademarks. "When an article is made that was theretofore unknown, it must be christened by a name by which it may be recognized and dealt in, and the name thus given it becomes public property, and all who deal in the article have the right to designate it by the name by which alone it is recognizable. (Leclanche Battery Co. *vs.* Western Electric Co., 83 Fed. Rep.)"

"The name of a secret preparation may be used by anyone for goods actually prepared by the recipe, for they are the goods indicated by the name, whether prepared by the original inventor of the recipe, or his successor in business, or not. (Seigert *vs.* Findlater, 7 C. D., p. 813.)"

"The user of the name must add some distinguishing statement showing that the article is his own production of the article known by that name and he must not imitate the dress or make up of the goods in addition to using the name, or do any affirmatory act calculated to deceive the public and pass off the goods as and for the previously known goods. (Cyc. 38–85.)"

As stated by the Official Gazette of the United States Patent Office, 1872, p. 28: "The Supreme Court of the United States, in President, etc., of the Hudson Canal Co. *vs.* Clark, repeated a proposition that as a rule has been frequently enunciated and settled beyond question, *viz.:* The office of a trademark is to point out distinctively the origin or ownership of the article to which it is affixed, or, in other words, to give notice who was the producer." "No one can claim protection for the exclusive use of a trademark or trade name which would practically give him monopoly in the sale of any goods other than those produced or made by himself, if he could, the public would be injured rather than protected, for competition would be destroyed. Nor can a generic name or a name merely descriptive of an article of trade, or of its qualities, ingredients, or characteristics, be employed as a trademark, and the exclusive use of it be entitled to protection. (Canal Co. *vs.* Clark, 13 Wall, 323.)"

"More recently this decision of the Supreme Court has been again reaffirmed in the Coco-Quinine case. The Supreme Court said: 'The use of a similar name by another to truthfully describe his own product does not constitute a legal or moral wrong, even if the effect be to cause the public to mistake the origin or ownership of the product.' In support of this statement the Court cited the following cases: Canal Co. *vs.* Clark, 13 Wall, 311, 325, 327; Standard Paint Co. *vs.* Trinidad Asphalt Co., 220 U. S., 446, 453; Howe Scale Co. *vs.* Wykoff, Semens and Benedict, 196 U. S., 118, 140.

THE PATENT LAW CREATES AND PROTECTS INDUSTRIAL PROPERTY.

Industrial property, *i. e.*, property acquired by industry, is of two kinds, namely, intellectual and material. The patent law, if properly interpreted and applied by the Patent Office and the Courts, protects both kinds. The knowledge accumulated by the practitioners of the medical arts of pharmacy and pharmaco-therapy are just as much industrial property as the material inventions and discoveries for which patents are granted.

Theoretically the intellectual property acquired by the practitioners of the medical arts are protected by the medical and pharmacal license laws. Practically, the door to practice is wide open to any person no matter how ignorant or venal. All he has to do is set up as a medicine manufacturer and practice both arts at wholesale without a license. To the extent that this illegitimate practice exists the medicine business is a menace to public health.

There has been a great increase of this illegitimate practice during late years as statistics show. One of the chemical journals is authority for the statement that within the past thirty years the number of so-called proprietary articles on the market has increased from 37 hundred to over 45 thousand.

The majority of these articles are ready-made prescriptions showing in their inception no greater skill than naturally to be expected from skilled licensed practitioners in the routine conduct of their vocation.

They are not patentable inventions in the meaning of the Patent Law, yet many of them have been patented. This, of course, is an abuse of the patent law for which the Patent Office is responsible.

Almost if not without exception, the names of these so-called proprietary articles have been claimed as trademarks or trade names by their producers, and most of them have been registered as such in the Patent Office. This is an abuse of the trademark law for which the Patent Office is also responsible.

In some instances lawsuits have occurred where similar names have been used by competitors for similar preparations. Sometimes the original commercial introducers have won out because of imitation of labels and packages and consequent deception of the public.

But it does not follow that imitation is piracy. On the contrary, imitation is the foundation upon which civilization itself is built. Without imitation there could be no civilization.

This being the case the Fathers of the American Republic and its wonderful Constitution provided for patent and copyright laws. The theory upon which these laws rest is that "it is to the interest of the community that persons should be induced to devote their time, energies and resources to original investigation for the furtherance of science, the arts, and manufactures. This was recognized from the earliest periods which can pretend to be described as civilized. It is to the advantage of the whole community that authors should be rewarded, and no measure of reward can be conceived more just and equitable and bearing a closer relation to the benefit conferred by the particular individual than to grant him the sole right to his writing or discovery for a limited period of time."

It will be noted that the application for patent if properly drawn up is practically a scientific monograph describing the invention and the manner of making and using it. As stated in Article I, Sec. 8, Clause 8, of the United States Constitution, the object of the patent and copyright laws is to promote progress in science and the useful arts. Pharmacy and pharmacotherapy are useful arts. It is hoped by your committee that the AMERICAN PHARMACEUTICAL ASSOCIATION will, sooner or later, establish a *Council of Pharmacy and Chemistry* to work in cooperation with the Council on Pharmacy and Chemistry of the American Medical Association, and that one of the things that will be accomplished by such coöperation will be the adoption of some plan whereby the division of the United States Patent Office having charge of the granting of materia medica patents will be placed in the hands of examiners competent and willing to conduct the granting of such patents strictly in compliance with the patent law and its beneficent objects.

PHARMACY EXHIBIT AT THE SESQUI-CENTENNIAL.

The American Pharmacy Exhibit at the Sesqui-Centennial International Exposition occupies 600 square feet in the Medical Science Section in the Palace of Education and Social Economy. The exhibit is almost completed and is attracting enormous attention. Pictures have been taken of it by the Exposition official photographers at the request of the Publicity Department of the Exposition, who had a special feature story writer prepare a story about it to be released to 17,000 newspapers throughout the United States. The following features make the exhibit very interesting.

Booth No. 1. Ancient Pharmacy: Pharmacy of the Colonial Period—Antiques, etc., completely equipped apothecary shop with fixtures and equipment of 114 years old.

Booth No. 2. Modern Prescription Pharmacy and Dispensing, showing a complete modern Prescription Department, equipped for drug examination, biological standardization, clinical testing, chemical testing and manufacturing pharmacy.

Booth No. 3. Pharmaceutical Education and Literature, showing the evolution of pharmaceutical education, the American Association of Colleges of Pharmacy, etc., also the evolution of the U. S. Pharmacopœia, showing copies of all editions from the first in 1820 to the one which has just become official, same with the "National Formulary" and the "U. S. Dispensatory," representative group of textbooks used in Colleges of Pharmacy, showing several different books on each subject. Also showing the JOURNAL OF THE A. PH. A. and the *American Journal of Pharmacy*.

ASSOCIATION BUSINESS

AD INTERIM BUSINESS OF THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1925–1926.

Office of the Secretary, 10 West Chase St., Baltimore, Md.

LETTER NO. 15.

July 23, 1926.

To the Members of the Council:

112. Motion No. 53 (See Council Letter No. 14, page 709) has been carried and Chairman Hilton appointed L. L. Walton, C. E. Caspari and E. G. Eberle as the Committee to Draft Resolutions on the Death of Dr. H. M. Whelpley. The Resolutions are as follows:

IN MEMORY OF HENRY MILTON WHELPLEY.

When we least look for it, Death enters the ranks and takes away some one whose services we cannot well do without. Passing by those who may perhaps be awaiting the summons, Death startles us by his selection of those who are active in the ranks, and from whose labors and counsel we expected to benefit. Sometime and somewhere the question will be asked of all of us: "What hast thou done with thy life and time?"

The records of the AMERICAN PHARMACEUTICAL ASSOCIATION speak of the activities of our lamented member Ex-President H. M. Whelpley, who ceased his labors on June 26, 1926. His attendance at ASSOCIATION meetings antedates his membership and from the time he became a member his interest grew with his attachment for the organization—he was always ready to serve in the ranks and in the offices to which he was from time to time elected—he considered service a duty and his work extended beyond the limits of this organization.

Henry Milton Whelpley joined the AMERICAN PHARMACEUTICAL ASSOCIATION in 1887, at which time he was elected Secretary of the Section on Pharmaceutical Legislation, and in the years following respectively Secretary and Chairman of the Scientific Section; from 1902 to 1908 he was Secretary of the Council; at the end of the latter term he was elected Treasurer and served until 1921; he presided over the Golden Anniversary meeting of the A. PH. A., was a member of the Council during most of the years of his ASSOCIATION membership and his attendance at the annual meetings represents an unbroken record. The substance of the tributes paid the deceased may be expressed in that he was an indefatigable, systematic and careful worker in whatever duty was assigned him—his services and devotion won for him the regard and esteem of pharmacists and recognition as an exemplary leader. Expression of this high regard was given on a number of occasions, the most recent being the award of the Remington Honor Medal.

An analysis of the tributes by those who knew him well shows that tolerance and kindness were outstanding qualities of the deceased and were often reflected in the way he presented his views in discussions and debates.

Dr. Whelpley was identified with many activities, zealous and devoted in everything he undertook; outside of pharmacy and within he exerted a potent and beneficial influence for the profession and the ASSOCIATION he served so well; hence, his passing leaves a vacancy in these ranks that it will be difficult to fill. His vision was clear and his perception keen; he was tolerant, considerate, kind, sociable, and was ever ready to strengthen bonds of friendship for a common good. The admirable qualities of the deceased were delicately accentuated by the fine companionship of the deceased and Mrs. Whelpley.

RESOLUTIONS.

WHEREAS the late Ex-President Henry Milton Whelpley, during an active membership of many years in the AMERICAN PHARMACEUTICAL ASSOCIATION, contributed largely to its activities and to shaping its affairs, and by his valued efforts aided in strengthening its growth and influence, and

WHEREAS his high ideals and attributes of character endeared him to his family and fellows, and the quality of his services was

most helpful to Pharmacy and the Association, be it

Resolved, That the American Pharmaceutical Association records deep appreciation of his influence and services, and its keen sorrow because of his passing, and expresses sincere sympathy to the widow and other members of the family. And be it further

Resolved, That these resolutions be made part of the minutes of the Council as a tribute to his memory, and a copy be sent to the widow.

L. L. Walton, *Chairman.*
(Signed) Charles E. Caspari.
E. G. Eberle.

(*Motion No. 58.*) *It is moved by Kelly that the foregoing resolutions be adopted and a copy be sent to Mrs. Whelpley and to the pharmaceutical press.*

113. Motion No. 54 (See Council Letter No. 14, page 709) has been carried and the parties mentioned therein have been notified.

114. Motion No. 55 (See Council Letter No. 14, page 710) has been carried and Mr. Christensen has been so notified.

115. Motion No. 56 (See Council Letter No. 14, page 711) and *Motion No. 57* (See Council Letter No. 14, page 711) have been carried. Applicants for membership numbered 174 to 240 inclusive and applicants for membership numbered H-260 to H-263 inclusive are therefore declared elected.

116. President Walton has appointed Dr. J. A. Koch as Councilor to represent the A. Ph. A. in the American Association for the Advancement of Science. (See Council Letter No. 12, page 504.)

117. Final action on item 117 will be taken in Philadelphia.

118. Chairman Hilton has appointed Dr. J. A. Koch as a member of the Committee on Publications *vice* Dr. H. M. Whelpley, deceased.

119. The following letter has been received from Chairman DuMez of the Committee on Publications:

"I am sending you herewith copies of my replies to requests received from Prof. Clyde M. Snow to use the text of the N. F. V for partial reproduction in Essentials of Pharmacy with Questions and Answers and from S. C. Henry, Secretary of the N. A. R. D. to use the text of the N. F. V for partial reproduction in some U. S. P. and N. F. Preparations issued by that Association.

"Such use of the N. F. IV was made in previous editions of each of these publications and I see no reason why permission should not be granted again. I am therefore recommending to the Council that both of these requests be granted."

(*Motion No. 60.*) *It is moved by DuMez that Prof. Clyde M. Snow and the National Association of Retail Druggists be granted permission to use the text of the N. F. V for partial reproduction in Essentials of Pharmacy with Questions and Answers and in Some U. S. P. and N. F. Preparations respectively, and at the usual charge of $5.00 in each case.*

120. No change in the tentative program of the Seventy-Fourth Annual Meeting as given in Council Letter No. 13, pp. 590–593, has been found necessary.

121. Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received:

No. 241, Walter Beatty, Mascutah, Ill.; No. 242, Catherine Curran, 6052 South Park Ave., Chicago, Ill.; No. 243, John A. J. Funk, Galveston, Ind.; No. 244, Samuel Goldberg, 213 Siegel St., Brooklyn, N. Y.; No. 245, Frederick T. Hafelfinger, 4219—8th St., N. W., Washington, D. C.; No. 246, Henry Stoddard Johnson, 23 Trumbull St., New Haven, Conn.; No. 247, Selma Marguerite Lortz, 765 Garfield St., Gary, Ind.; No. 248, Jeston A. Mathews, Hendrick, Iowa; No. 249, Charles Wythe Parsons, 1515 Thirteenth St., Sacramento, Cal.; No. 250, Charles F. Poe, 875—16th St., Boulder, Colo.; No. 251, Oscar Rennebohm, 1817 Kendall Ave., Madison, Wis.; No. 252, Alexander Reid, 16548 Woodward Ave., Detroit, Mich.; No. 253, Paul Sang, 1306 S. Millard Ave., Chicago, Ill.; No. 254, Max Schaffer, P. O. Box 740, Somerville, N. J.; No. 255, Raymond L. Rink, 190 Quadrangle, Iowa City, Iowa; No. 256, Joseph Schrank, 1010 Hoe Ave., Bronx, N. Y.; No. 257, Anton H. Seely, Cleburne, Texas; No. 258, Carl Edward Smith, 120 Fir Street, San Diego, Calif.; No. 259, Leo Waldinger, 150 Keap St., Brooklyn, N. Y.

(*Motion No. 61.*) *Vote on applications for active membership in the American Pharmaceutical Association.*

122. Applicants for Membership on Account of Contributions to the Headquarters Building Fund. The following non-members

of the A. PH. A. have pledged $25.00 or more to the Headquarters Building Fund and have made a cash payment of $5.00 or more. They are entitled to membership and you are requested to vote on the applications which have been properly endorsed.

H-264, Ralph Carl Christensen, 166 Warren Ave., Kenmore, Buffalo, N. Y.; H-265, Cecil R. Veatch, 103 N. Webster St., Harrisburg, Ill.

(*Motion No. 62.*) *Vote on applications of contributors to the Headquarters Building Fund for Membership in the American Pharmaceutical Association.*

123. Applicants for Life Membership on Account of Contributions to Headquarters Building Fund. Under a provision made by the Board of Directors of the A. PH. A. at a meeting held in Washington, D. C., on December 7, 1923, a contributor to the Headquarters Building Fund who subscribed $1000.00 or more is entitled to life membership. The following application, which has been properly endorsed, is submitted under this provision.

L. M. 2, George M. Beringer, Fifth and Federal Sts., Camden, N. J.

(*Motion No. 63.*) *Vote on application for Life Membership in the American Pharmaceutical Association.*

E. F. KELLY, *Secretary.*

SEVENTY-FIFTH ANNIVERSARY OF THE LIBRARY MOVEMENT.

Libraries were established in this country more than a century ago, but 1851 is generally accepted as the year beginning the library movement, and to the State of Massachusetts belongs the honor of first passing a permissive law allowing funds for library purposes. One hundred years ago, on Independence Day, John Adams and Thomas Jefferson ceased their labors; both of them founded great library movements; that of the latter has resulted in the Library of Congress. Francis Hopkins, of Rhode Island, one of the signers of the Declaration of Independence, is credited with establishing the first library in America; however, there are contestants for the honor (see JOURNAL A. PH. A., for June, p. 508). Benjamin Franklin founded the first circulating library in this country, and it was Andrew Carnegie who placed the public library as second only to the public school in influential importance.

Quoting Cassie Moncure Lyne: "The time was when a library meant a college collection of classics; but now the word signifies almost a laboratory for science, since technical books are much in demand for the trades. In days of yore a man read law or 'studied medicine,' whereas little concern was given the 'trades' by writers of textbooks." All has now changed for the betterment of the arts, professions and trades.

Pharmacy needs a library which will serve pharmacy and the drug activities in general. The many useful arts and sciences related to pharmacy signify that such a library will render a great public service because the divisions are linked to a large number of the industries and the promotion of public health, protection of foods, agriculture, etc.

The Hanbury Medal presented to Prof. John M. Maisch during the year of the World's Fair at Chicago. Daniel Hanbury was born 101 years ago, died 51 years ago.

A HALF CENTURY OF THE NATIONAL FORMULARY 1880–1930. TITLES, SYNONYMS AND ABBREVIATIONS.

BY H. A. LANGENHAN.*

(*Continued from p. 708, August* JOUR. A. PH. A.)

N. F. Titles, Synonmys and Abbreviations.	Issues of U. S. P. and N. F.† 20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR CINCHONÆ, FERRI ET PEPSINI								L	L	L		
Elixir Cinchonæ, Ferri et Pepsini											S	
Elixir of Cinchona, Iron and Pepsin								E	E	E		
Elixir of Calisaya, Alkaloidal with Pepsin and Iron											S	
Elixir of Calisaya, Iron and Pepsin								S	S	S		
Elix. Cinchon. Ferr. et Pepsin.											A	
ELIXIR CINCHONÆ ALKALOIDORUM, FERRI ET STRYCHNINÆ											L	L
Elixir of Cinchona Alkaloids, Iron and Strychnine											E	E
ELIXIR CINCHONÆ FERRI ET STRYCHNINÆ								L	L	L		
Elixir Cinchonæ, Ferri et Strychninæ											S	
Elixir of Cinchona, Iron and Strychnine								E	E	E		
Elixir of Calisaya, Alkaloidal with Iron and Strychnine											S	S
Elixir of Calisaya, Iron and Strychnine								S	S	S		
Elix. Cinchon. Ferr. et Strych.											A	A
ELIXIR CINCHONÆ DETANNATUM								L	L			
Detannated Elixir of Cinchona								E	E			
Detannated Elixir of Calisaya								S	S			
ELIXIR CINCHONÆ, PEPSINI ET STRYCHNINÆ								L	L	L		
Elixir of Cinchona, Pepsin and Strychnine								E	E	E		
Elixir of Calisaya, Pepsin and Strychnine								S	S	S		
ELIXIR COCÆ										L		
Elixir of Coca										E		
Elixir of Coca								S	S			
Elixir of Erythroxylon								E	E			
Elixir of Erythroxylon										S		
ELIXIR ERYTHROXYLI								L	L			
ELIXIR COCÆ ET GUARANÆ										L		
Elixir of Coca and Guarana										E		
Elixir of Coca and Guarana								S	S			
Elixir of Erythroxylon and Guarana								E	E			
Elixir of Erythroxylon and Guarana										S		
ELIXIR ERYTHROXYLI ET GUARANÆ								L	L			
ELIXIR CORYDALIS COMPOSITUM								L	L	L	L	L
Compound Elixir of Corydalis								E	E	E	E	E
Elix. Coryd. Co.											A	A
ELIXIR CURASSAO								L	L	L	d	
Elixir of Curacao								E	E	E		
Curacao Cordial								S	S	S		

* Associate Professor of Pharmacy, University of Washington College of Pharmacy.

† The dates of the revisions of the U. S. Pharmacopœia are given and the National Formulary which most closely correspond, thus the column under 1910 refers to N. F. IV and 1920 to N. F. V, etc. References to the U. S. P. titles are designated by numerals; those to the National Formulary by lower case letters, in neither case by superior numerals or letters. Other explanations will be found in Prefatory Remarks.

d—Replaced by **ELIXIR AURANTII AMARI,** N. F.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.† 20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR ERIODICTYI AROMATICUM	..	..	..	..	..	..	..	L	L	L	L	L
Aromatic Elixir of Eriodictyon	..	..	..	..	..	..	..	E	E	E	E	E
Aromatic Elixir of Yerba Santa	..	..	..	..	..	..	..	S	S	S	S	S
Elixer Corrigens	..	..	..	..	..	..	..	S	S	S	S	S
Elix. Eriodict. Arom.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR EUCALYPTI	..	..	..	..	..	..	..	L	L	L	..	..
Elixir of Eucalyptus	..	..	..	..	..	..	..	E	E	E	..	..
ELIXIR EUONYMI	..	..	..	..	..	..	..	L	L	L	..	..
Elixir of Euonymus	..	..	..	..	..	..	..	E	E	E	..	..
Elixir of Wahoo	..	..	..	..	..	..	..	S	S	S	..	..
ELIXIR EUPHORBIÆ COMPOSITUM	..	..	..	..	..	..	..	..	..	..	..	L
Compound Elixir of Euphorbia	..	..	..	..	..	..	..	..	..	..	..	E
Antiasthmatic Elixir	..	..	..	..	..	..	..	..	..	..	..	S
Elix. Euphorb. Co.	..	..	..	..	..	..	..	..	..	..	..	A
ELIXIR FERRI HYPOPHOSPHITIS	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Ferric Hypophosphite	..	..	..	..	..	..	..	..	..	..	E	..
Elixir of Hypophosphite of Iron	..	..	..	..	..	..	..	E	E	E	..	..
Elix. Ferr. Hypophos.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR FERRI LACTATIS	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Iron Lactate	..	..	..	..	..	..	..	..	..	..	E	..
Elixir of Lactate of Iron	..	..	..	..	..	..	..	E	E	E	..	..
Elix. Ferr. Lact.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR FERRI PHOSPHATIS	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Ferric Phosphate	..	..	..	..	..	..	..	..	..	E	E	..
Elixir of Phosphate of Iron	..	..	..	..	..	..	..	E	E	..	..	..
Elix. Ferr. Phos.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR FERRI PHOSPHATIS, CINCHONIDINÆ ET STRYCHNINÆ	..	..	..	..	..	..	..	L	L	..	..	..
Elixir of Phosphate of Iron, Cinchonidine and Strychnine	..	..	..	..	..	..	..	E	E	..	..	..
ELIXIR FERRI PHOSPHATIS, QUININÆ ET STRYCHNINÆ	..	..	..	..	..	..	..	L	L	..	..	..
Elixir of Phosphate of Iron, Quinine and Strychnine	..	..	..	..	..	..	..	E	E	..	..	..
ELIXIR FERRI PYROPHOSPHATIS	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Ferric Pyrophosphate	..	..	..	..	..	..	..	..	..	..	E	..
Elixir of Pyrophosphate of Iron	..	..	..	..	..	..	..	E	E	E	..	..
Elixir of Pyrophosphate of Iron	..	..	..	..	..	..	..	..	..	..	S	..
Elix. Ferr. Pyrophos.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR FERRI PYROPHOSPHATIS, QUININÆ ET STRYCHNINÆ	..	..	..	..	..	..	..	..	..	L	L	L
Elixir of Ferric Pyrophosphate, Quinine and Strychnine	..	..	..	..	..	..	..	..	..	E	E	E
Elix. Ferr. Pyrophos. Quin. et Strych.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR FERRI, QUININÆ ET STRYCHNINÆ	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Iron, Quinine and Strychnine	..	..	..	..	..	..	..	E	E	E	E	E
Elixir I. Q. and S.	..	..	..	..	..	..	..	..	..	..	..	S
Elix. Ferr. Quin. et Strych.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR FORMATUM	..	..	..	..	..	..	..	..	..	..	L	..
Elixir of Formatis	..	..	..	..	..	..	..	..	..	..	E	..
Elix. Format.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR FORMATUM COMPOSITUM	..	..	..	..	..	..	..	..	..	..	L	..
Compound Elixir of Formatis	..	..	..	..	..	..	..	..	..	..	E	..
Elix. Format. Co.	..	..	..	..	..	..	..	..	..	..	A	..

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.† 20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR FRANGULÆ	..	..	..	..	..	..	..	L	L	L	..	..
Elixir of Frangula	..	..	..	..	..	..	..	E	E	E	..	..
Elixir of Buckthorn	..	..	..	..	..	..	..	S	S	S	..	..
ELIXIR GENTIANÆ	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Gentian	..	..	..	..	..	..	..	E	E	E	E	E
Elix. Gent.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR GENTIANÆ ET FERRI	..	..	..	..	..	..	..	..	..	..	L	L
Elixir of Gentian and Iron	..	..	..	..	..	..	..	..	..	..	E	E
ELIXIR GENTIANÆ CUM TINCTURA FERRI CHLORIDI	..	..	..	..	..	..	..	L	L	L	..	..
Elixir Gentianæ cum Tinctura Ferri Chloridi	..	..	..	..	..	..	..	..	..	..	S	..
Elixir of Gentian with Tincture of Chloride of Iron	..	..	..	..	..	..	..	E	E	E	..	..
Elixir of Gentian with Tincture of Citro-Chloride of Iron	..	..	..	..	..	..	..	..	..	..	S	S
Elix. Gent. et Ferr.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR GENTIANÆ ET FERRI PHOSPHATIS	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Gentian and Ferric Phosphate	..	..	..	..	..	..	..	E	E	E	E	E
Elixir Gentianæ Ferratum	..	..	..	..	..	..	..	S	S	S	S	S
Ferrated Elixir of Gentian	..	..	..	..	..	..	..	S	S	S	..	..
Ferrophosphated Elixir of Gentian	..	..	..	..	..	..	..	S	S	S	..	..
Elix. Gent. et Ferr. Phosph.	..	..	..	..	..	..	..	..	..	..	A	..
Elix. Gent. et Ferr. Phos.	..	..	..	..	..	..	..	..	..	..	..	A
ELIXIR GENTIANÆ GLYCERINATUM	..	..	..	..	..	..	..	..	L	L	L	
Glycerinated Elixir of Gentian	..	..	..	..	..	..	..	..	E	E	E	
Elix. Gent. Glycerin.	..	..	..	..	..	..	..	..	..	A	A	
ELIXIR GLYCEROPHOSPHATUM COMPOSITUM	..	..	..	..	..	..	..	..	..	L	L	
Compound Elixir of Glycerophosphates	..	..	..	..	..	..	..	..	..	E	E	
Compound Solution of Glycerophosphates	..	..	..	..	..	..	..	..	..	S	S	
Elix. Glycerophos. Co.	..	..	..	..	..	..	..	..	..	A	A	
ELIXIR GLYCYRRHIZÆ	..	..	..	..	..	..	L	L	L	25	25	
Elixir of Glycyrrhiza	..	..	..	..	..	..	E	E	E	..	..	
Elixir of Licorice	..	..	..	..	..	..	S	..	S	..	..	
Elixir of Liquorice	..	..	..	..	..	..	S	S	..	..	..	
ELIXIR GLYCYRRHIZÆ AQUOSUM	..	..	..	..	..	..	..	..	..	L	L	
Aqueous Elixir of Glycyrrhiza	..	..	..	..	..	..	..	..	..	E	E	
Aqueous Elixir of Licorice	..	..	..	..	..	..	..	..	..	S	S	
Elix. Glycyrrh. Aq.	..	..	..	..	..	..	..	..	..	A	A	
ELIXIR GLYCYRRHIZÆ AROMATICUM	..	..	..	..	..	..	L	L	L	L	..	
Aromatic Elixir of Glycyrrhizæ	..	..	..	..	..	..	E	E	E	E	..	
Aromatic Elixir of Licorice	..	..	..	..	..	..	..	..	S	S	..	
Aromatic Elixir of Liquorice	..	..	..	..	..	..	S	S	..	..	..	
Elix. Glycyrrh. Arom.	..	..	..	..	..	..	..	..	..	A	..	
ELIXIR GLYCEROPHOSPHATUM	..	..	..	..	..	..	..	..	L	..	..	
Elixir of Glycerophosphatis	..	..	..	..	..	..	..	..	E	..	..	
ELIXIR GRINDELIÆ	..	..	..	..	..	..	L	L	L	..	..	
Elixir of Grindelia	..	..	..	..	..	..	E	E	E	..	..	
ELIXIR GUARANÆ	..	..	..	..	..	..	L	L	L	L	L	
Elixir of Guarana	..	..	..	..	..	..	E	E	E	E	E	
Elix. Guar.	..	..	..	..	..	..	..	..	..	A	A	

25—See **ELIXIR GLYCYRRHIZÆ**, U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†											
	20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR GUARANÆ ET APII												L
Elixir of Guarana and Celery												E
Elix. Guaran. et. Apii												A
ELIXIR HELONIADIS COMPOSITUM												L
Compound Elixir of Helonias												E
Elix. Heloniad. Co.												A
ELIXIR HUMULI								L	L	L	L	
Elixir of Hops											E	
Elixir of Hops								S	S			
Elixir of Humulus								E	E	E		
Elix. Humul.											A	
ELIXIR HYDRASTIS COMPOSITUM												L
Compound Elixir of Hydrastis												E
Alkaline Elixir												S
Elix. Hydrast. Co.												A
ELIXIR HYDRANGEÆ ET LITHII												L
Elixir of Hydrangea and Lithium												E
Elix. Hydrang. et Lith.												A
ELIXIR HYPOPHOSPHITUM								L	L	L	L	
Elixir of Hypophosphites								E	E	E	E	
Elix. Hypophos.											A	
ELIXIR HYPOPHOSPHITUM ET FERRI											L	
Elixir of Hypophosphitis and Iron								E	E	E	E	
ELIXIR HYPOPHOSPHITUM CUM FERRO								L	L	L		
Elix. Hypophos. et Ferr.											A	
ELIXIR LITHII BROMIDI								L	L	L	L	
Elixir of Lithium Bromide								E	E	E	E	
Elix. Lith. Brom.											A	
ELIXIR LITHII CITRATIS								L	L	L	L	
Elixir of Lithium Citrate								E	E	E	E	
Elix. Lith. Cit.											A	
ELIXIR LITHII SALICYLATIS								L	L	L	L	
Elixir of Lithium Salicylate								E	E	E	E	
Elix. Lith. Sal.											A	
ELIXIR MALTI ET FERRI								L	L	L		
Elixir of Malt and Iron								E	E	E		
ELIXIR MANACEÆ COMPOSITUM												L
Compound Elixir of Manaca												E
Elix. Manac. Co.												S
ELIXIR PARALDEHYDI									L	L		
Elixir of Paraldehyde									E	E		
ELIXIR PEPSINI								L	L	L	L	L
Elixir of Pepsin								E	E	E	E	E
Elix. Pepsin.											A	A
ELIXIR PEPSINI, BISMUTHI ET STRYCHNINÆ								L	L	L	L	L
Elixir of Pepsin, Bismuth and Strychnine								E	E	E	E	E
Elix. Pepsin. Bism. et Strych.											A	A
ELIXIR PEPSINI COMPOSITUM												L
Compound Elixir of Pepsin												E
Compound Elixir of Pepsin								S	S			
Compound Digestive Elixir								E	E			
Compound Digestive Elixir												S

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.† 20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR DIGESTIVUM COMPOSITUM	..	..	..	..	..	..	..	..	L	L	..	..
Elix. Pepsin. Co.	..	..	..	..	..	..	..	..	..	..	..	A
ELIXIR PEPSINI ET BISMUTHI	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Pepsin and Bismuth	..	..	..	..	..	..	..	E	E	E	E	E
Elix. Pepsin. et Bism.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR PEPSINI ET FERRI	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Pepsin and Iron	..	..	..	..	..	..	..	E	E	E	E	..
Elix. Pepsin. et Ferr.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR PEPSINI ET RENNINI COMPOSITUM	..	..	..	..	..	..	..	..	..	..	L	L
Compound Elixir of Pepsin and Rennin	..	..	..	..	..	..	..	..	..	..	E	E
ESSENTIA PEPSINI	..	..	..	..	..	..	..	..	L	..	..	..
Essentia Pepsini	..	..	..	..	..	..	..	..	..	..	S	..
Essence of Pepsin	..	..	..	..	..	..	..	..	E	..	..	..
Essence of Pepsin	..	..	..	..	..	..	..	..	..	..	..	S
Elix. Pepsin. et Rennin. Co.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR PHOSPHORI	..	..	..	..	..	..	L	26	L	L	L	
Elixir of Phosphorus	..	..	..	..	..	..	E	..	E	E	E	
Elix. Phosphor.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR PHOSPHORI ET NUCIS VOMICÆ	..	..	..	..	..	..	L	L	L	L	L	
Elixir of Phosphorous and Nux Vomica	..	..	..	..	..	..	E	E	E	E	E	
Elix. Phosphor. et Nuc. Vom.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR PICIS COMPOSITUM	..	..	..	..	..	..	L	L	L	..	..	
Compound Elixir of Tar	..	..	..	..	..	..	E	E	E	..	..	
ELIXIR PILOCARPI	..	..	..	..	..	..	L	L	L	..	..	
Elixir of Pilocarpus	..	..	..	..	..	..	E	E	E	..	..	
Elixir of Jaborandi	..	..	..	..	..	..	S	S	S	..	..	
ELIXIR POTASSII ACETATIS	..	..	..	..	..	..	L	L	L	L	..	
Elixir of Potassium Acetate	..	..	..	..	..	..	E	E	E	E	..	
Elix. Pot. Acet.	..	..	..	..	..	..	..	..	..	A	..	
ELIXIR POTASSII ACETATIS ET JUNIPERI	..	..	..	..	..	..	L	L	L	L	..	
Elixir of Potassium Acetate and Juniper	..	..	..	..	..	..	E	E	E	E	..	
Elix. Pot. Acet. et Junip.	..	..	..	..	..	..	..	..	..	A	..	
ELIXIR POTASSII BROMIDI	..	..	..	..	..	..	L	L	L	L	L	
Elixir of Potassium Bromide	..	..	..	..	..	..	E	E	E	E	E	
Elix. Pot. Brom.	..	..	..	..	..	..	..	..	..	A	A	
ELIXIR QUININÆ COMPOSITUM	..	..	..	..	..	..	L	L	..	..	..	
Compound Elixir of Quinine	..	..	..	..	..	..	E	E	..	..	..	
ELIXIR QUININÆ ET PHOSPHATUM COMPOSITUM	..	..	..	..	..	..	L	L	L	..	..	
Compound Elixir of Quinine and Phosphates	..	..	..	..	..	..	E	E	E	..	..	
ELIXIR QUININÆ VALERATIS ET STRYCHNINÆ	..	..	..	..	..	..	L	L	..	L	..	
Elixir of Quinine Valeratis et Strychninæ	..	..	..	..	..	..	E	..	..	..	..	
ELIXIR QUININÆ VALERIANATIS ET STRYCHNINÆ	..	..	..	..	..	..	L	..	L	..	..	
Elixir of Quinine Valerianate and Strychnine	..	..	..	..	..	..	E	E	E	E	..	
Elix. Quin. Valer. et Strych.	..	..	..	..	..	..	..	..	..	A	..	
ELIXIR RHEI	..	..	..	..	..	..	L	L	L	..	..	
Elixir of Rhubarb	..	..	..	..	..	..	E	E	E	..	..	

26—See **ELIXIR PHOSPHORI**, U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†												
	20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR RHEI ET MAGNESII ACETATIS	..	..	..	..	..	..	..	L	L	L	..	..
Elixir of Rhubarb and Magnesium Acetate	..	..	..	..	..	..	..	E	E	E	..	..
Elixir Rhei et Magnesiæ	..	..	..	..	..	..	..	S	S	S	..	..
Elixir of Rhubarb and Magnesia	..	..	..	..	..	..	..	S	S	S	..	..
ELIXIR RUBI COMPOSITUM	..	..	..	..	..	..	..	L	L	L	L	..
Compound Elixir of Blackberry	..	..	..	..	..	..	..	E	E	E	E	..
Elix. Rubi Co.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR SODII BROMIDI	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Sodium Bromide	..	..	..	..	..	..	..	E	E	E	E	E
Elix. Sod. Brom.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR SODII HYPOPHOSPHITIS	..	..	..	..	..	..	..	L	L	L	L	..
Elixir of Sodium Hypophosphite	..	..	..	..	..	..	..	E	E	E	E	..
Elix. Sod. Hypophos.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR SODII SALICYLATIS	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Sodium Salicylate	..	..	..	..	..	..	..	E	E	E	E	E
Elix. Sod. Salicyl. Co.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR SODII SALICYLATIS COMPOSITUS	..	..	..	..	..	..	..	..	..	..	L	L
Compound Elixir of Sodium Salicylate	..	..	..	..	..	..	..	..	..	..	E	E
Elix. Sod. Salicyl. Co.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR STILLINGIÆ COMPOSITUM	..	..	..	..	..	..	..	L	L	L	..	..
Compound Elixir of Stillingia	..	..	..	..	..	..	..	E	E	E	..	..
ELIXIR STRYCHNINÆ VALERATIS	..	..	..	..	..	..	..	..	..	..	L	..
Elixir of Strychnine Valerate	..	..	..	..	..	..	..	..	..	..	E	..
ELIXIR STRYCHNINÆ VALERIANATIS	..	..	..	..	..	..	..	L	L	L	..	..
Elixir Strychninæ Valerianatis	..	..	..	..	..	..	..	..	..	..	S	..
Elixir of Strychnine Valerianate	..	..	..	..	..	..	..	E	E	E	..	..
Elix. Strych. Valer.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIR TARAXACI COMPOSITUM	..	..	..	..	..	..	..	L	L	L	L	L
Compound Elixir of Taraxacum	..	..	..	..	..	..	..	E	E	E	E	E
Elix. Tarax. Co.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR TERPINI HYDRATIS	..	..	..	..	..	..	..	..	L	L	L	
Elixir of Terpin Hydrate	..	..	..	..	..	..	..	..	E	E	E	
Elix. Terp. Hyd.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR TERPINI HYDRATIS ET CODEINÆ	..	..	..	..	..	..	..	..	..	L	L	
Elixir of Terpin Hydrate and Codeine	..	..	..	..	..	..	..	..	..	E	E	
ELIXIR TERPINI HYDRATIS CUM CODEINA	..	..	..	..	..	..	..	..	L	..	..	
Elixir Terpin Hydrate with Codeine	..	..	..	..	..	..	..	..	E	..	..	
Elix. Terpin. Hyd. et Codein.	..	..	..	..	..	..	..	..	..	A	A	
ELIXIR TERPINI HYDRATIS ET CREOSOTI COMPOSITUM	..	..	..	..	..	..	..	..	..	..	L	
Compound Elixir of Terpin Hydrate and Creosote	..	..	..	..	..	..	..	..	..	..	E	
Elix. Terpin. Hyd. et Creosot. Co.	..	..	..	..	..	..	..	..	..	..	A	
ELIXIR TERPINI HYDRATIS ET DIACETYLMORPHINÆ	..	..	..	..	..	..	..	..	..	L	..	
Elixir of Terpin Hydrate and Diacetylmorphine	..	..	..	..	..	..	..	..	..	E	..	
ELIXIR TERPINI HYDRATIS CUM HEROINA	..	..	..	..	..	..	..	..	L	..	..	
Elixir Terpini Hydratis cum Heroina	..	..	..	..	..	..	..	..	..	S	..	
Elixir of Terpin Hydrate with Heroine	..	..	..	..	..	..	..	..	E	..	..	
Elix. Terpin. Hyd. et Diacetylmorph.	..	..	..	..	..	..	..	..	..	A	..	
ELIXIR TONGÆ ET SALICYLATUM	..	..	..	..	..	..	..	..	..	..	L	
Elixir of Tonga and Salicylates	..	..	..	..	..	..	..	..	..	..	E	
Elix. Tong. et Salicyl.	..	..	..	..	..	..	..	..	..	..	A	

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†											
	20	30	30*	40	50	60	70	80	90	00	10	20
ELIXIR TURNERÆ	..	..	..	..	..	..	..	L	L	L	..	..
Elixir of Turnera	..	..	..	..	..	..	..	E	E	E	..	..
Elixir of Damiana	..	..	..	..	..	..	..	S	S	S	..	..
ELIXIR VANILLINI COMPOSITUM	..	..	..	..	..	..	..	..	..	..	L	L
Compound Elixir of Vanillin	..	..	..	..	..	..	..	..	..	..	E	E
Elix. Vanil. Co.	..	..	..	..	..	..	..	..	..	..	A	..
Elix. Vanillin. Co.	..	..	..	..	..	..	..	..	..	..	..	A
ELIXIR VIBURNI OPULI COMPOSITUM	..	..	..	..	..	..	..	L	L	L	L	L
Compound Elixir of Viburnum Opulus	..	..	..	..	..	..	..	E	E	E	E	E
Compound Elixir of Cramp Bark	..	..	..	..	..	..	..	S	S	S	..	..
Elix. Viburn. Opul. Co.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR VIBURNI PRUNIFOLII	..	..	..	..	..	..	..	L	L	L	L	L
Elixir of Viburnum Prunifolium	..	..	..	..	..	..	..	E	E	E	E	E
Elixir of Black Haw	..	..	..	..	..	..	..	S	S	S	..	..
Elix. Viburn. Prun.	..	..	..	..	..	..	..	..	..	..	A	A
ELIXIR ZINCI VALERATIS	..	..	..	..	..	..	..	..	..	..	L	..
Elixir of Zinc Valerate	..	..	..	..	..	..	..	..	..	..	E	..
ELIXIR ZINCI VALERIANATIS	..	..	..	..	..	..	..	L	L	L	..	..
Elixir Zinci Valerianatis	..	..	..	..	..	..	..	..	..	..	S	..
Elixir of Zinc Valerianate	..	..	..	..	..	..	..	E	E	E	..	..
Elix. Zinc. Valer.	..	..	..	..	..	..	..	..	..	..	A	..
ELIXIRIA	..	..	..	..	..	..	..	..	..	L	L	L
Elixirs	..	..	..	..	..	..	..	..	..	E	E	E
EMPLASTRUM AMMONIACI	27	27	27	27	27	27	27	27	L	L	..	..
Ammoniac Plaster	..	..	..	..	..	..	..	..	E	E	..	..
EMPLASTRUM AMMONIACI CUM HYDRARGYRO	..	..	28	..	28	28	28	28	28	L	..	..
Ammoniac Plaster with Mercury	..	..	..	..	..	..	..	..	..	E	..	..
EMPLASTRUM ARNICÆ	..	..	..	..	..	29	29	29	29	L	..	..
Arnica Plaster	..	..	..	..	..	..	..	..	..	E	..	..
EMPLASTRUM AROMATICUM	..	..	..	..	..	..	..	L	L	L	e	e
Aromatic Plaster	..	..	..	..	..	..	..	E	E	E	..	..
Spice Plaster	..	..	..	..	..	..	..	S	S	S	..	..
EMPLASTRUM ASAFŒTIDÆ	30	30	30	30	30	30	30	30	L	L	..	..
Asafetida Plaster	..	..	..	..	..	..	..	..	E	E	..	..
EMPLASTRUM FERRI	31	31	..	31	31	31	31	31	31	L	..	..
Iron Plaster	..	..	..	..	..	..	..	..	..	E	..	..
Strengthening Plaster	..	..	..	..	..	..	..	..	..	S	..	..
EMPLASTRUM FUSCUM CAMPHORATUM	..	..	..	..	..	..	..	L	L	L	L	L
Camphorated Brown Plaster	..	..	..	..	..	..	..	E	E	E	E	E
Camphorated Mother Plaster	..	..	..	..	..	..	..	S	S	S	S	S
Emplastrum Matris Camphoratum	..	..	..	..	..	..	..	S	S	S	..	..
Emp. Fusc. Camph.	..	..	..	..	..	..	..	..	..	..	A	A
EMPLASTRUM GALBANI	..	..	32	..	..	..	..	32	L	L	..	..
Galbanum Plaster	..	..	..	..	..	..	..	..	E	E	..	..

27—See **EMPLASTRUM AMMONIACI,** U. S. P.
28—See **EMPLASTRUM AMMONIACI CUM HYDRARGYRO,** U. S. P.
29—See **EMPLASTRUM ARNICÆ,** U. S. P.
e—See **PULVIS AROMATICUS RUBIFACIENS,** N. F.
30—See **EMPLASTRUM ASAFŒTIDÆ,** U. S. P.
31—See **EMPLASTRUM FERRI,** U. S. P.
32—See **EMPLASTRUM GALBANI,** U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†											
	20	30	30*	40	50	60	70	80	90	00	10	20
EMPLASTRUM PICIS BURGUNDICÆ	..	..	..	..	..	33	33	33	33	L	..	..
Burgundy Pitch Plaster	..	..	..	..	..	..	..	..	..	E	..	..
EMPLASTRUM PICIS CANADENSIS	..	..	..	..	..	34	34	34	L	L	..	..
Canada Pitch Plaster	..	..	..	..	..	..	..	..	E	E	..	..
EMPLASTRUM PICIS CANTHARIDATUM	35	35	35	35	35	35	35	35	35	L	..	..
Cantharidal Pitch Plaster	..	..	..	..	..	..	..	..	..	E	..	..
Warming Plaster	..	..	..	..	..	..	..	..	..	S	..	..
EMPLASTRUM PICIS LIQUIDÆ COMPOSITUM	..	..	..	..	..	..	..	L	L	L	..	..
Compound Tar Plaster	..	..	..	..	..	..	..	E	E	E	..	..
EMPLASTRUM RESINÆ	36	36	36	36	36	36	36	36	36	L	..	..
Resin Plaster	..	..	..	..	..	..	..	..	..	E	..	..
Adhesive Plaster	..	..	..	..	..	..	..	..	..	S	..	..
EMPLASTRUM SAPONIS	..	..	..	37	37	37	37	37	37	37	L	L
Soap Plaster	..	..	..	..	..	..	..	..	..	..	E	E
Emp. Sapon	..	..	..	..	..	..	..	..	..	..	S	S
EMULSA	..	..	..	..	..	..	..	..	..	L	L	L
Emulsions	..	..	..	..	..	..	..	..	E	E	E	E
EMULSIONES	..	..	..	..	..	..	..	..	L	..	..	..
EMULSA SYMBOLICA	..	..	..	..	..	..	..	..	..	L	..	..
Typical Emulsions	..	..	..	..	..	..	..	..	..	E	..	..
EMULSUM AMMONIACI	38	38	38	38	38	38	38	38	39	L	..	..
Emulsion of Ammoniac	..	..	..	..	..	..	..	..	..	E	..	..
Mistura Ammoniaci	..	..	..	..	..	..	..	..	..	S	..	..
EMULSIO CHLOROFORMI	..	..	..	..	40	40	40	L	41	41	..	..
Emulsion of Chloroform	..	..	..	..	..	..	..	E	..	..	..	..
EMULSUM OLEI MORRHUÆ	..	..	..	..	..	..	..	..	L	42	42	42
EMULSIO OLEI MORRHUÆ	..	..	..	..	..	..	..	L	..	..	..	..
Emulsion of Cod-Liver Oil	..	..	..	..	..	..	..	E	E	..	..	..
Irish Moss Emulsion of Cod-Liver Oil	..	..	..	..	..	..	..	S	..	..	..	..
EMULSUM OLEI MORRHUÆ CUM CALCII ET SODII PHOSPHATIBUS	..	..	..	..	..	..	..	..	L	L	..	..
Emulsion of Cod-Liver Oil with Calcium and Sodium Phosphates	..	..	..	..	..	..	..	..	E	E	..	..
Emulsion of Cod-Liver Oil with Phosphates of Lime and Soda	..	..	..	..	..	..	..	..	S	S	..	..
EMULSUM OLEI MORRHUÆ CUM CALCII LACTOPHOSPHATE	..	..	..	..	..	..	..	..	..	L	L	..
Emulsion of Cod-Liver Oil with Calcium Lactophosphate	..	..	..	..	..	..	..	E	E	E	E	..
Emulsion of Cod-Liver Oil with Lactophosphate of Lime	..	..	..	..	..	..	..	..	S	S	..	..
EMULSIO OLEI MORRHUÆ CUM CALCII LACTOPHOSPHATE	..	..	..	..	..	..	..	..	L	..	..	..
Emul. Ol. Morrh. c. Calc. Lactophos	..	..	..	..	..	..	..	..	..	A	..	..

33—See **EMPLASTRUM PICIS BURGUNDICÆ,** U. S. P.
34—See **EMPLASTRUM PICIS CANADENSIS,** U. S. P.
35—See **EMPLASTRUM PICIS CANTHARIDATUM,** U. S. P.
36—See **EMPLASTRUM RESINÆ,** U. S. P.
37—See **EMPLASTRUM SAPONIS,** U. S. P.
38—See **MISTURA AMMONIACI,** U. S. P.
39—See **EMULSUM AMMONIACI,** U. S. P.
40—See **MISTURA CHLOROFORMI,** U. S. P.
41—See **EMULSUM CHLOROFORMI,** U. S. P.
42—See **EMULSUM OLEI MORRHUÆ,** U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.† 20	30	30*	40	50	60	70	80	90	00	10	20
EMULSUM OLEI MORRHUÆ CUM CALCII PHOSPHATE	..	..	..	..	..	..	..	..	..	L	L	..
Emulsion of Cod-Liver Oil with Calcium Phosphate	..	..	..	..	..	..	..	E	E	E	E	..
Emulsion of Cod-Liver Oil with Phosphate of Lime	..	..	..	..	..	..	..	S	S	S	S	..
EMULSIO OLEI MORRHUÆ CUM CALCII PHOSPHATE	..	..	..	..	..	..	L	L	..	..	..	..
Emul. Ol. Morrh. c. Calc. Phos.	..	..	..	..	..	..	..	..	..	..	A	..
EMULSIO OLEI MORRHUÆ CUM HYPOPHOSPHITIBUS	..	..	..	..	..	..	..	L	43	L	L	
EMULSIO OLEI MORRHUÆ CUM, HYPOPHOSPHITIBUS	..	..	..	..	..	..	L	..	..	..	..	..
Emulsion of Cod-Liver Oil with Hypophosphite	..	..	..	..	..	..	E	E	..	E	E	
Emul. Ol. Morrh. c. Hypophos.	..	..	..	..	..	..	..	..	..	A	A	
EMULSUM OLEI MORRHUÆ CUM MALTO	..	..	..	..	..	..	..	..	..	L	L	
Emulsion of Cod-Liver Oil with Malt	..	..	..	..	..	..	..	..	..	E	E	
EMULSUM OLEI MORRHUÆ CUM EXTRACTO MALTI	..	..	..	..	..	..	..	..	L	..	..	
Emulsion of Cod-Liver Oil with Extract of Malt	..	..	..	..	..	..	E	E	E	..	..	
EMULSIO OLEI MORRHUÆ CUM EXTRACTO MALTI	..	..	..	..	..	..	L	L	..	..	..	
Emulsio Olei Morrhuæ cum Extracto Malti	..	..	..	..	..	..	..	..	..	..	..	S
Emul. Ol. Morrh. c. Malt.	..	..	..	..	..	..	..	..	..	A	A	
EMULSUM OLEI MORRHUÆ CUM PRUNO VIRGINIANA	..	..	..	..	..	..	..	..	L	L	..	
Emulsion of Cod-Liver Oil with Wild Cherry	..	..	..	..	..	..	..	E	E	E	E	..
EMULSIO OLEI MORRHUÆ CUM PRUNO VIRGINIANA	..	..	..	..	..	..	L	L	..	..	..	..
Emul. Ol. Morrh. c. Prun. Virg.	..	..	..	..	..	..	..	..	..	A	..	
EMULSUM OLEI MORRHUÆ CUM VITELLO	..	..	..	..	..	..	..	..	..	L	L	
Emulsion of Cod-Liver Oil with Egg	..	..	..	..	..	..	..	..	..	E	E	
Emul. Ol. Morrh. c. Vitel.	..	..	..	..	..	..	..	..	..	A	A	
EMULSUM OLEI RICINI	..	..	..	..	..	..	..	..	L	L	L	
Emulsion of Castor Oil	..	..	..	..	..	..	E	E	E	E	E	
EMULSIO OLEI RICINI	..	..	..	..	..	..	L	L	..	..	..	..
Irish Moss Emulsion of Castor Oil	..	..	..	..	..	..	S	..	..	..	..	..
Emul. Ol. Ricin.	..	..	..	..	..	..	..	..	..	A	A	
EMULSUM OLEI TEREBINTHINÆ	..	..	..	..	..	..	..	L	44	44	44	
EMULSIO OLEI TEREBINTHINÆ	..	..	..	..	..	..	L	..	..	..	..	..
Emulsion of Oil of Turpentine	..	..	..	..	..	..	E	E	..	..	..	..
EMULSUM OLEI TEREBINTHINÆ FORTIOR	..	..	..	..	..	..	..	..	L	..	..	
Stronger Emulsion of Oil of Turpentine	..	..	..	..	..	..	..	E	E	..	..	
Forbes Emulsion of Oil of Turpentine	..	..	..	..	..	..	..	S	S	..	..	
EMULSIO OLEI TEREBINTHINÆ FORTIOR	..	..	..	..	..	..	..	L	..	..	..	..
EMULSUM PETROLATI	..	..	..	..	..	..	..	..	..	L	L	
Emulsion of Petrolatum	..	..	..	..	..	..	..	..	..	E	E	
EMULSUM PETROLEI	..	..	..	..	..	..	..	..	L	..	..	
Emulsum Petrolei	..	..	..	..	..	..	..	..	..	S	S	
Emulsion of Petroleum	..	..	..	..	..	..	..	..	E	..	..	
Emul. Petrolat.	..	..	..	..	..	..	..	..	..	A	A	

43—See **EMULSUM OLEI MORRHUÆ CUM HYPOPHOSPHITIBUS**, U. S. P.
44—See **EMULSUM TEREBINTHINÆ**, U. S. P.

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EMULSUM PHOSPHATICUM	..	..	..	..	..	..	..	..	..	L	..	..
Phosphatic Emulsion	..	..	..	..	..	..	..	E	E	E	..	..
Mistura Phosphatica	..	..	..	..	..	..	..	S	S	S	..	..
EMULSIO PHOSPHATICA	..	..	..	..	..	..	..	L	L	..	..	..
EXTRACTA	..	..	..	..	..	..	..	..	..	L	L	L
Extracts	..	..	..	..	..	..	..	..	..	E	E	E
Solid Extracts	..	..	..	..	..	..	..	..	..	S	..	..
EXTRACTUM ACONITI	45	45	45	45	45	..	45	45	45	L	45	..
Extract of Aconite	..	..	..	..	..	..	..	..	..	E	..	..
Extract of Aconite Root	..	..	..	..	..	..	..	..	..	S	..	..
EXTRACTUM ALOES	..	..	..	..	..	..	..	..	46	46	L	..
Extract of Aloes	..	..	..	..	..	..	..	..	..	..	E	..
Powdered Extract of Aloes	..	..	..	..	..	..	..	..	..	..	S	..
Ext. Aloes	..	..	..	..	..	..	..	..	..	..	A	..
EXTRACTUM ARNICÆ RADICIS	..	..	..	..	..	..	..	47	47	L	..	..
Extract of Arnica Root	..	..	..	..	..	..	..	..	..	E	..	..
EXTRACTUM CINCHONÆ	48	48	48	48	48	48	48	48	48	L	L	..
Extract of Cinchona	..	..	..	..	..	..	..	..	..	E	E	..
Ext. Cinchon.	..	..	..	..	..	..	..	..	..	..	A	..
EXTRACTUM CONII	49	49	49	49	49	49	49	..	..	L	L	L
Extract of Conium	..	..	..	..	..	..	..	..	..	E	E	E
Extract of Hemlock	..	..	..	..	..	..	..	..	..	S	..	..
Ext. Conii	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM ERGOTÆ AQUOSUM	..	..	..	..	..	..	..	..	..	..	L	L
Aqueous Extract of Ergot	..	..	..	..	..	..	..	..	..	..	E	E
Ergotin P. I.	..	..	..	..	..	..	..	..	..	..	S	S
Ext. Ergot. Aq.	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM EUONYMI	..	..	..	..	..	..	..	50	50	50	L	L
Extract of Euonymus	..	..	..	..	..	..	..	..	..	..	E	E
Powdered Extract of Euonymus	..	..	..	..	..	..	..	..	..	..	S	S
Ext. Euonymi	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM FERRI POMATUM	..	..	..	..	..	..	..	L	L	L	L	L
Ferrated Extract of Apples	..	..	..	..	..	..	..	E	E	E	E	E
Ferri Malas Crudus	..	..	..	..	..	..	..	S	S	S	S	S
Crude Malate of Iron	..	..	..	..	..	..	..	S	S	S	S	S
Ext. Ferr. Pomat.	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM GENTIANÆ	51	51	51	51	51	51	51	51	51	51	51	L
Extract of Gentian	..	..	..	..	..	..	..	..	..	..	..	E
Ext. Gentian	..	..	..	..	..	..	..	..	..	..	..	A
EXTRACTUM GLYCYRRHIZÆ DEPURATUM	..	..	..	..	..	..	..	L	L	L	..	..
Purified Extract of Glycyrrhizæ	..	..	..	..	..	..	..	E	E	E	..	..
Purified Extract of Liquorice	..	..	..	..	..	..	..	S	S	..	..	..
Purified Extract of Licorice	..	..	..	..	..	..	..	..	..	S	..	..
EXTRACTUM HÆMATOXYLI	52	52	52	52	52	52	52	52	52	52	L	L
Extract Hæmatoxylon	..	..	..	..	..	..	..	..	..	..	E	E
Ext. Hæmatox.	..	..	..	..	..	..	..	..	..	..	A	A

45—See **EXTRACTUM ACONITI**, U. S. P.
46—See **EXTRACTUM ALOES**, U. S. P.
47—See **EXTRACTUM ARNICÆ RADICIS**, U. S. P.
48—See **EXTRACTUM CINCHONÆ**, U. S. P.
49—See **EXTRACTUM CONII**, U. S. P.
50—See **EXTRACTUM EUONYMI**, U. S. P.
51—See **EXTRACTUM GENTIANÆ**, U. S. P.
52—See **EXTRACTUM HÆMATOXYLI**, U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†												
	20	30	30*	40	50	60	70	80	90	00	10	20
EXTRACTUM HYDRASTIS	..	..	..	..	..	..	..	..	..	..	53	L
Extract of Hydrastis	..	..	..	..	..	..	..	..	..	..	..	E
Powdered Extract of Hydrastis	..	..	..	..	..	..	..	..	..	..	..	S
Ext. Hydrast.	..	..	..	..	..	..	..	..	..	..	..	A
EXTRACTUM IGNATIÆ	..	..	..	..	..	54	54	..	..	..	L	L
Extract of Ignatia	..	..	..	..	..	..	..	..	..	..	E	E
Powdered Extract of Ignatia	..	..	..	..	..	..	..	..	..	..	S	S
Ext. Ignat.	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM IRIDIS	..	..	..	..	..	..	..	55	55	L	..	..
Extract of Iris	..	..	..	..	..	..	..	..	..	E	..	..
Extract of Blue Flag	..	..	..	..	..	..	..	..	..	S	..	..
EXTRACTUM JALAPÆ	56	56	56	56	56	56	56	..	56	L	L	..
Extract of Jalap	..	..	..	..	..	..	..	..	..	E	E	..
Ext. Jalap.	..	..	..	..	..	..	..	..	..	..	A	..
EXTRACTUM JUGLANDIS	57	57	57	57	57	57	57	57	57	L	..	..
Extract of Juglans	..	..	..	..	..	..	..	..	..	E	..	..
Extract of Butternut	..	..	..	..	..	..	..	..	..	S	..	..
EXTRACTUM KRAMERIÆ	..	..	..	58	58	58	58	58	58	58	L	L
Extract of Krameria	..	..	..	..	..	..	..	..	..	..	E	E
Powdered Extract of Krameria	..	..	..	..	..	..	..	..	..	..	S	S
Ext. Kramer.	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM LEPTANDRÆ	..	..	..	..	..	..	..	59	59	59	L	L
Extract of Leptandra	..	..	..	..	..	..	..	..	..	..	E	E
Powdered Extract of Leptandra	..	..	..	..	..	..	..	..	..	..	S	S
Ext. Leptand.	..	..	..	..	..	..	..	..	..	..	A	A
EXTRACTUM MALTI	..	..	..	..	..	..	..	60	L	60	60	60
Extract of Malt	..	..	..	..	..	..	..	..	E	..	..	..
EXTRACTUM OPII	..	..	..	..	61	61	61	61	61	61	61	L
Extract of Opium	..	..	..	..	..	..	..	..	..	..	..	E
Opii Extractum P. I.	..	..	..	..	..	..	..	..	..	..	..	S
Powdered Extract of Opium	..	..	..	..	..	..	..	..	..	..	..	S
Ext. Opii	..	..	..	..	..	..	..	..	..	..	..	A
EXTRACTUM PODOPHYLLI	62	62	62	62	62	62	62	62	62	L	L	..
Extract of Podophyllum	..	..	..	..	..	..	..	..	..	E	E	..
Extract of May Apple	..	..	..	..	..	..	..	..	..	S	..	..
Ext. Podophyl.	..	..	..	..	..	..	..	..	..	..	A	..
EXTRACTUM QUASSIÆ	63	63	63	63	63	63	63	63	63	63	L	..
Extract of Quassia	..	..	..	..	..	..	..	..	..	..	E	..
Powdered Extract of Quassia	..	..	..	..	..	..	..	..	..	..	S	..
Ext. Quas.	..	..	..	..	..	..	..	..	..	..	A	..
EXTRACTUM STRAMONII SEMINIS	..	..	..	64	64	..	64	64	64	L	..	..
Extract of Stramonium Seed	..	..	..	..	..	..	..	..	..	E	..	..

53—See **EXTRACTUM HYDRASTIS,** U. S. P.
54—See **EXTRACTUM IGNATIÆ,** U. S. P.
55—See **EXTRACTUM IRIDIS,** U. S. P.
56—See **EXTRACTUM JALAPÆ,** U. S. P.
57—See **EXTRACTUM JUGLANDIS,** U. S. P.
58—See **EXTRACTUM KRAMERIÆ,** U. S. P.
59—See **EXTRACTUM LEPTANDRÆ,** U. S. P.
60—See **EXTRACTUM MALTI,** U. S. P.
61—See **EXTRACTUM OPII,** U. S. P.
62—See **EXTRACTUM PODOPHYLLI,** U. S. P.
63—See **EXTRACTUM QUASSIÆ,** U. S. P.
64—See **EXTRACTUM STRAMONII SEMINIS,** U. S. P.

N. F. Titles, Synonyms and Abbreviations.	Issues of U. S. P. and N. F.†											
	20	30	30*	40	50	60	70	80	90	00	10	20
EXTRACTUM SUMBUL	..	..	..	..	..	..	..	..	..	65	65	L
Extract of Sumbul	..	..	..	..	..	..	..	..	..	..	..	E
Ext. Sumbul	..	..	..	..	..	..	..	..	..	..	..	A
EXTRACTUM TARAXICI	..	66	66	66	66	66	66	66	66	66	66	L
Extract of Taraxacum	..	..	..	..	..	..	..	..	..	..	..	E
Ext. Tarax.	..	..	..	..	..	..	..	..	..	..	..	A
EXTRACTUM UVÆ URSI	..	..	..	..	..	..	..	..	67	L	..	..
Extract of Uva Ursi	..	..	..	..	..	..	..	..	..	E	..	..
FERRI ET QUININÆ CITRAS EFFERVESCENS	..	..	..	..	..	..	..	L	..	..	..	..
Effervescent Citrate of Iron and Quinine	..	..	..	..	..	..	..	E	..	..	..	..
FERRI IODIDUM SACCHARATUM	..	..	..	..	..	..	..	68	68	L	..	..
Saccharated Ferrous Iodide	..	..	..	..	..	..	..	..	..	E	..	..
FERRI OXIDUM SACCHARATUM	..	..	..	..	..	..	..	..	..	..	L	L
Saccharated Ferric Oxide	..	..	..	..	..	..	..	..	..	..	E	E
Soluble Ferric Oxide	..	..	..	..	..	..	..	..	..	..	S	S
Ferrum Oxydatum Saccharatum	..	..	..	..	..	..	..	..	..	..	S	S
Eisen Zucker	..	..	..	..	..	..	..	..	..	..	S	S
Ferr. Oxid. Sacch.	..	..	..	..	..	..	..	..	..	..	A	A
FERRI PHOSPHAS EFFERVESCENS	..	..	..	..	..	..	..	L	..	..	..	..
Effervescent Phosphate of Iron	..	..	..	..	..	..	..	E	..	..	..	..
FLUIDEXTRACTA	..	..	..	..	..	..	..	..	..	L	L	L
Fluidextracts	..	..	..	..	..	..	..	..	..	E	E	E
EXTRACTA FLUIDA	..	..	..	..	..	..	..	L	L	L	..	..
Fluid Extracts	..	..	..	..	..	..	..	E	E	..	..	..
FLUIDEXTRACTUM ADONIDIS	..	..	..	..	..	..	..	..	..	L	L	L
Fluidextract of Adonis	..	..	..	..	..	..	..	..	E	E	E	E
EXTRACTUM ADONIDIS FLUIDUM	..	..	..	..	..	..	..	L	L	..	..	..
Fluid Extract of Adonis	..	..	..	..	..	..	..	E	..	..	..	..
Fldext. Adonid.	..	..	..	..	..	..	..	..	..	..	A	A
FLUIDEXTRACTUM ALETRIDIS	..	..	..	..	..	..	..	..	..	L	L	L
Fluidextract of Aletris	..	..	..	..	..	..	..	..	E	E	E	E
EXTRACTUM ALETRIDIS FLUIDUM	..	..	..	..	..	..	..	L	L	..	..	..
Fluid Extract of Aletris	..	..	..	..	..	..	..	E	..	..	..	..
Fldext. Aletrid.	..	..	..	..	..	..	..	..	..	..	A	A
FLUIDEXTRACTUM ANGELICÆ RADICIS	..	..	..	..	..	..	..	..	..	L	L	L
Fluidextract of Angelica Root	..	..	..	..	..	..	..	..	E	E	E	E
EXTRACTUM ANGELICÆ RADICIS FLUIDUM	..	..	..	..	..	..	..	L	L	..	..	..
Fluid Extract of Angelica Root	..	..	..	..	..	..	..	E	..	..	..	..
Fldext. Angel. Rad.	..	..	..	..	..	..	..	..	..	..	A	A
FLUIDEXTRACTUM APII FRUCTUS	..	..	..	..	..	..	..	..	..	..	L	L
Fluidextract of Celery Fruit	..	..	..	..	..	..	..	..	..	..	E	E
FLUIDEXTRACTUM APII GRAVEOLENTIS	..	..	..	..	..	..	..	..	..	L	..	..
Fluidextractum Apii Graveolentis	..	..	..	..	..	..	..	..	..	..	S	..
Fluidextract of Celery	..	..	..	..	..	..	..	E	E	E	..	..
EXTRACTUM APII GRAVEOLENTIS FLUIDUM	..	..	..	..	..	..	..	L	L	..	..	..
Fldext. Apii Fruct.	..	..	..	..	..	..	..	..	..	..	A	A
FLUIDEXTRACTUM APOCYNI	..	..	..	..	..	..	..	..	69	69	L	L
Fluidextract of Apocynum	..	..	..	..	..	..	..	..	..	..	E	E

65—See **EXTRACTUM SUMBUL**, U. S. P.
66—See **EXTRACTUM TARAXACI**, U. S. P.
67—See **EXTRACTUM UVA URSI**, U. S. P.
68—See **FERRI IODIDUM SACCHARATUM**, U. S. P.

(*To be continued*)

EDITORIAL NOTES

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Collaborators: The Members of the Council; the Editor of the YEAR BOOK, A. G. DUMEZ; E. FULLERTON COOK, Chairman, U. S. P. Revision Committee; W. L. SCOVILLE, Chairman, N. F. Revision Committee; the Chairmen of the Sections, A. PH. A.: F. F. BERG, J. G. BEARD, H. C. NEWTON, AMBROSE HUNSBERGER, L. K. DARBAKER; WILLIAM D. JONES, Chairman of the House of Delegates, A. PH. A.; EDWARD H. KRAUS, President, A. A. C. P.; CHARLES B. JORDAN, Chairman Executive Committee, A. A. C. P.; M. N. FORD, President, N. A. B. P.; HENRY C. CHRISTENSEN, Secretary, N. A. B. P.

MANUFACTURE AND USES OF TRIMETHYLAMINE AND DIMETHYLAMINE.

A novel process of manufacturing trimethylamine and dimethylamine has been developed by Dr. D. K. Tressler and his assistants at Mellon Institute of Industrial Research of the University of Pittsburgh. The new process will reduce the cost of production of these amines considerably.

Trimethylamine or mixtures of trimethylamine and dimethylamine may be used in the manufacture of rubber accelerators and as an attractant for the cotton boll weevils and may find use in the preparation of poison baits. Both trimethylamine and dimethylamine may be used for the preparation of methyl chloride. Trimethylamine has been suggested for use in the preparation of potassium carbonate according to a process resembling the Solvay process for the manufacture of sodium carbonate except that trimethylamine is used in place of ammonia.

The researches concerning the properties and uses of these amines are being continued at Mellon Institute and probably will disclose other commercial applications.

GOVERNMENT TESTING OF CLINICAL THERMOMETERS.

During the fiscal year just ended the Thermometry Section of the Bureau of Standards has tested 60,000 clinical thermometers. In commenting on the direct as well as indirect value of standardization the Secretary of the Bureau of Standards, Henry D. Hubbard, said: "The Bureau of Standards advises with respect to the essential points of fitness. By telling the truth about products, testing promotes better factory inspection before delivery to avoid rejections. In turn, factory inspection promotes better measured contract of production process to insure uniformly high quality. The final result is standardized process, the output of which is of predictable quality."

VARIATIONS IN THE ALKALOIDAL CONTENT OF ACONITUM NAPELLUS.

The author reports first on the amount of total alkaloid in *A. Napellus* var *vulgare,* and *A. Napellus,* var *pyramidale;* this he found to be practically the same. He next determined the total alkaloid in aconite roots obtained from different localities (in France), ranging from the marshy plains of the Aisne to the mountainous regions of the Pyrenees; the plants were collected in the summer and at the same state of growth. The total alkaloid varied from 0.186 to 2.971 per cent, those from the marshes of the Aisne being the richest, and those from the plateaus of the Aisne being the poorest. Plants growing at different heights in the Pyrenees were next investigated, and it was found that the percentage increased with the altitude, varying from 0.4 to 1 per cent. He next directed his attention to differences according to the age. Cultivated plants and also plants growing wild in three different localities in the Pyrenees were collected every month from April to October.

* Deceased.

The determination of the total alkaloids in the different organs showed the following variations: The alkaloid in the parent root diminishes progressively, while that of the rootlets increases, the increase being particularly noticeable when the seeds are forming. The alkaloid in the daughter root increases during the same period, as does also that of its rootlets. It might appear that the daughter root was being enriched at the expense of the parent root, but this is not the case, the lives of the parent root and daughter being quite independent as far as their alkaloidal content is concerned. Sometimes the percentage of alkaloid in both roots falls simultaneously; sometimes that in the parent falls appreciably, while that in the daughter root remains constant, and again the increase in the daughter root may be much greater than the loss in the parent root. The alkaloid in the leaf is relatively high in the spring, but diminishes rapidly from May onwards. The parent root should therefore be collected a little before the flowering period, leaving the daughter root for transplantation; the rootlets are richer than the root, and should not be rejected. The leaves should be collected while they are still young. Transplantation of wild plants and cultivation do not result in an increased percentage of alkaloid, but the seeds of such transplanted plants germinate better, and the parent root produces nine (as many as ten) daughter roots, two facts which facilitate the propagation of the plant.

The pharmacological action of the total alkaloids from aconites in different localities varies enormously, those from aconites of one region being as much as fifty times as toxic as those from another. The alkaloids of the parent root are more toxic than those of the daughter root. The author proposes to continue his investigations, more particularly with the view of determining the pharmacological activity of different organs of the plant in various stages of growth, and also the chemical composition of the alkaloids present.—M. Mëtin (*Bull. sci. pharmacol.*, xxxviii, 197 through *Chemist & Druggist*).

PERSONAL AND NEWS ITEMS.

Samuel Y. Harris, Past-President of the Maryland Pharmaceutical Association, and Mrs. Harris celebrated their thirty-fifth anniversary recently at Bozmans in Calvert County, Maryland.

Samuel C. Davis, Nashville, Tenn., has been named for the legislature, running independently on his record in the last legislature and opposed by Mayor Howse. From newspaper accounts the vote is a tribute to the personal popularity of this well-known pharmacist.

Dr. R. B. J. Stanbury, Secretary of the Canadian Pharmaceutical Association, and **Dean G. A. Burbidge** of the Maritime College of Pharmacy, Halifax, have been appointed delegates to the meeting of the A. PH. A. in Philadelphia.

Prof. Otto Raubenheimer has been sending cards from various places visited by him in Europe. The most recent is one from Tyrol, where, on August 17, an Historical Society of Pharmacy was organized, of which the correspondent has been elected reporter for the United States.

Former Secretary, A. PH. A., **Prof. Wm. B. Day** was taken seriously ill while on a journey from Chicago to Boston, where he and Mrs. Day were to visit Ex-President and Mrs. Charles H. Packard. On arrival it was found necessary for **Professor Day** to go to a hospital for an appendicitis operation. Word from Mr. Packard informs us of the rapid recovery of the patient. Members of the A. PH. A. regret the illness which may prevent Professor Day's attendance at the Philadelphia meeting. Best wishes for restoration to health is expressed and a hope that he may be able to go to the Convention.

The distinction of Officer of the Order of Orange-Nassau has been conferred on Secretary-General **J. J. Hofman** of the International Pharmaceutical Federation.

Prof. Dr. L. van Itallie, honorary member of the AMERICAN PHARMACEUTICAL ASSOCIATION, celebrated the 40th anniversary of his graduation from the University of Utrecht, July 1st.

Pharmacist **Julia E. Emanuel,** of Fort Wayne, member of the A. PH. A., has been actively engaged as owner of a pharmacy for nearly a quarter of a century. The *American Magazine*, in a recent issue, gave an account of her methods in conducting her store. Not only has Miss Emanuel been successful in business, but she takes a personal interest in her employees.

Samuel S. Dworkin, Chairman of the Committees on Biologicals for the A. PH. A. and N. A. R. D. has issued a message to retail pharmacists urging them to hold on to

and develop the sales of biologicals. He states that "a recent survey made throughout the United States reveals the fact that vast quantities of these products are being distributed in a more or less haphazard manner by supply houses who engage in this business largely in a commercial way only, without any attempt to render a real professional service to the medical fraternity." He impresses "the need of proper storage under refrigeration, the prompt delivery of all orders, the selection and carrying stock only of products of the highest standards, the checking up of stocks of outdated potency, are only a few of the important duties that devolve upon the shoulders of the distributor."

The award of the Jones Medal for 1926 has been made to Lloyd M. Chew. The Medal is presented annually by **William D. Jones,** Chairman of the House of Delegates, A. PH. A., and President of the State Board of Pharmacy, to that graduate of the College of Pharmacy of Florida University making the highest average on the Board Examination. Mr. Chew received the degree of Bachelor of Science in Pharmacy in June, and at the same time received the Ramsauer Medal, presented annually by **D. W. Ramsauer,** of Jacksonville, to that graduate of the College of Pharmacy making the highest scholastic record.

President **L. L. Walton** represented the AMERICAN PHARMACEUTICAL ASSOCIATION at the ceremonies under direction of the American Chemical Society, honoring the memory of Joseph Priestley. An interesting program was carried out at the home of the discoverer of oxygen in Northumberland, Pa., where, in 1874, a like ceremony inspired the founding of the American Chemical Society.

Among recent visitors at the AMERICAN PHARMACEUTICAL ASSOCIATION offices were **Publicity Director E. L. Newcomb** of the A. PH. A. Headquarters, who is also Secretary of the N. W. D. A., **Treasurer Charles W. Holton, Prof. E. V. Kyser,** of Chapel Hill, N. C.

Dr. Julius A. Koch is the Councilor in the American Association for the Advancement of Science for the AMERICAN PHARMACEUTICAL ASSOCIATION.

The late **Dr. H. M. Whelpley** is credited with the authentic explanation of the use of the discoidal by American Indians. An aboriginal Indian pipe, in his possession, is carved, showing an athlete throwing the discoidal with his right hand while the left clutches a handful of arrows. Accordingly archaeologists hold that the success of the game is to roll the discoidal and shoot an arrow through the hole in center of the discoidal. Dr. Whelpley's collection contains 20 or more of hematite discoidals.

Dr. E. Emmett Reid, head of the Department of Organic Chemistry at Johns Hopkins University, will be consultant and director of the Research Department of Hynson, Westcott & Dunning; **Dr. Daniel Twistt** is head of the Department. **Dr. David I. Macht,** formerly of the Department of Pharmacology of Johns Hopkins Medical School, will become head of the Department of Pharmacology.

IN MEMORY OF HENRY MILTON WHELPLEY.

(*Continued from August* JOURNAL.)

E. FULLERTON COOK, CHAIRMAN U. S. P. REVISION COMMITTEE.

The writing of that name in this far-off land brings to my mind so many happy and interesting experiences associated with Dr. Whelpley during the past twenty-five years that there is for the moment only a glow of friendliness and anticipation. Only a few days before sailing we were together and then he was so forceful, so interested in everything, so delightfully reminiscent, and yet so deeply interested in the future.

But I am compelled to face the sad reality that we are not again to have that genial smile, that hearty handclasp, that interested listener, that kindly adviser and inspirational presence.

The death of Dr. Whelpley is a loss to all of pharmacy in the United States for his interests were so broad and his desire to advance the profession so sincere, that in the most unexpected places he will be missed. But it is in certain specific activities that the loss is being most keenly felt. Others are better qualified than I to point this out in his college work or in the editorial field or where his many interests led him in St. Louis or in the State of Missouri, whether medical, pharmaceutical, historical or archaeological. Others will speak of his continuous and varied services, so valuable to the A. PH. A., but it is especially of his interest in the Pharmacopœia to which I would refer.

Facts are not at hand to trace his former connections with the Pharmacopœia but

his election to the newly organized Board of Trustees of the Pharmacopœial Convention in 1900 is sufficient indication of his reputation in that Convention for integrity and excellent judgment.

That first Board of Trustees in 1900 had many problems to face as it established rules and precedence which have so fully justified themselves during the last two decades. But it was especially in the decades beginning in 1910 and again in 1920, when Secretary of the Board of Trustees, that the most signal service was rendered.

There was no flourish of trumpets, no loud shouting or boasting, but the affairs of the Board moved quietly and smoothly, the records were complete, and a system was established which proved satisfactory to all, even though much of the business was by correspondence and extended over a decade. I would not detract from the credit due other members of the Board, and in fact it was that perfect harmony and strong bond of common interest which existed between the members of the Board, especially the Chairman and the Secretary, which was responsible for the success of the administrations, but often the guiding hand of Dr. Whelpley could be seen in a crisis and certainly his judgment was an important factor in every issue. This was doubtless due to the fundamental honesty, unselfishness and common sense back of every decision and that, without forgetting his kindliness and good will toward all associates.

When all has been said probably the truest praise is the unexpressed confidence and trust which every member of the Board gave to the work of the Secretary. It will be difficult to fill the many empty places his death has left and he will be missed nowhere in pharmacy more than as Secretary of the Board of Trustees of the U. S. Pharmacopœial Convention.

Bern, Switzerland, July 31, 1926.

WILLIAM D. JONES, CHAIRMAN HOUSE OF DELEGATES, A. PH. A.

I feel it a great honor to lay my humble tribute upon the bier of a truly great man. While the pleasure of knowing Dr. Henry M. Whelpley intimately was not given to me, yet in my short acquaintance with him, I soon learned to respect, honor and love him. He, of all members of the AMERICAN PHARMACEUTICAL ASSOCIATION, upon my first attendance, commanded my attention by his interest, his loyalty and his ability. His personality was most attractive to me. He had entered into the afternoon of his life, but there still seemed to be with him the ardor, the vital interest and the enthusiasm of youth. I have known few men who seemed to grow old with more grace and beautiful dignity than did Doctor Whelpley. May I not ask that all of us at this time do that which I am sure would please him most; namely, take up the burdens and problems of our ASSOCIATION, to the service of which he gave his life and ability, and dedicating our lives to the carrying on of the work he loved so well; and that our thoughts and affections may still follow him, even into the great beyond. Let us bow our heads and ask "that his soul may, through the mercy of God, rest in peace and that light eternal may shine upon him."

W. H. ZEIGLER, PAST-PRESIDENT AMERICAN ASSOCIATION OF COLLEGE OF PHARMACY.

For many years I have loved and admired Dr. Henry M. Whelpley and I shall always cherish the memory of my associations with him. He was loved and honored by all who knew him. American Pharmacy has suffered a great loss by his death but his achievements and lovable personality will never be forgotten.

OBITUARY.

JOHN N. W. OTTO.

John Nicholas Washington Otto—New Orleans, member of the AMERICAN PHARMACEUTICAL ASSOCIATION—died at his home June 18. He had been in business since 1876 at the same location. The deceased had a large number of friends and was highly esteemed by them, evidenced by the attendance at the funeral ceremonies. He was a member of local and State pharmaceutical organizations and took a deep interest and active part in them.

Mrs. Otto, three sons and a daughter survive the deceased.

SOCIETIES AND COLLEGES.

CONVENTION OF AMERICAN PHARMACEUTICAL ASSOCIATION BELLEVUE-STRATFORD HOTEL, PHILADELPHIA.

September 13 to 18, 1926.

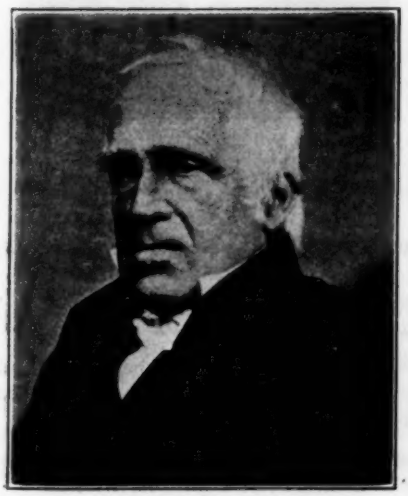
EXECUTIVE COMMITTEE.

AMBROSE HUNSBERGER, *General Chairman*
ROBERT J. RUTH, *Secretary*
J. C. PEACOCK, *Treasurer*

COMMITTEE CHAIRMEN.

Allied Professions, J. R. Minehart
Entertainment, R. Hendrickson
Finance, O. W. Osterlund
Hospitality, M. M. Smith
Hotels, B. C. Goodhart
Information, J. W. E. Harrison
Ladies, Mrs. Ambrose Hunsberger
Publicity (National), R. P. Fischelis
Publicity (Local), C. H. LaWall
Registration, W. J. Stoneback
Speakers, W. L. Cliffe
Sporting Activities, R. H. Lackey
Veterans, Harry Swain

Registration Booth, Information Booth, Representative from the Philadelphia Rapid Transit Co., (operating surface, subway and elevated cars; busses, Yellow-Taxicabs, and aeroplanes) are situated in the large hall at the elevators going out on the Bellevue-Stratford roof. All of the sessions will be held on the roof.



DANIEL B. SMITH.
First President, A. PH. A.

GENERAL PROGRAM FOR SEVENTY-FOURTH ANNUAL MEETING, A. PH. A.

All official meetings of the Convention will be held in Bellevue-Stratford Hotel.

MONDAY, SEPTEMBER 13.

9:00 A.M. Meeting of the Council, A. PH. A. *Pink Room.*
9:00 A.M. National Association of Boards of Pharmacy. *Rose Room.*
9:00 A.M. American Association of Colleges of Pharmacy (Chemistry Section). *Red Room.*
Teachers' Conferences (Practical Pharmacy Section). *South Room.*
(Materia Medica, Pharmacognosy and Botany Section.) *Green Room.*
2:00 P.M. National Association of Boards of Pharmacy. *Rose Room.*
2:00 P.M. American Association of Colleges of Pharmacy. *South Room.*
8:00 P.M. National Association of Boards of Pharmacy. *Rose Room.*
8:00 P.M. American Association of Colleges of Pharmacy. *South Room.*

TUESDAY, SEPTEMBER 14.

9:00 A.M. Joint session, National Assocation of Boards of Pharmacy and American Association of Colleges of Pharmacy. *Rose Room.*
2:00 P.M. National Association of Boards of Pharmacy. *Rose Room.*
2:00 P.M. American Association of Colleges of Pharmacy. *South Room.*
3:00 P.M. Afternoon Tea. For ladies only. *Oak Room.*
7:00 P.M. First Sessions, House of Delegates, A. PH. A. *Rose Room.*
8:00 P.M. First General Session, A. PH. A. *Rose Room.*
Dancing and Refreshments following the First General Session.

WEDNESDAY, SEPTEMBER 15.

9:00 A.M. First Session, Section on Historical Pharmacy. *South Room.*

9:00 A.M. First Session, Section on Commercial Interests. *Oak Room.*

9:00 A.M. First Session, Scientific Section. *Rose Room.*

10:00 A.M. Trip to Wanamakers, inspection, shopping, luncheon, music, returning about 3 P.M. For ladies only.

2:00 P.M. Second Session, House of Delegates, A. PH. A. *Rose Room.*

7:00 P.M. Meeting of the Council, A. PH. A. *Pink Room.*

9:00 P.M. President's Reception and Ball. *Rose, South and Oak Rooms.*

THURSDAY, SEPTEMBER 16.

8:00 A.M. Meeting of the Council, A. PH. A. *Pink Room.*

9:00 A.M. First Session, Section on Practical Pharmacy and Dispensing. *South Room.*

9:00 A.M. First Session, Section on Education and Legislation. *Oak Room.*

9:00 A.M. Second Session, Scientific Section. *Rose Room.*

9:00 A.M. First Session, Women's Section. *Junior Room.*

10:00 A.M. Stroll through Rittenhouse Square and club section, followed by luncheon. For ladies only.

1:00 P.M. Second General Session, A. PH. A. *Rose Room.*

3:00 P.M. Trip to Glenolden. Inspection of the plant followed by dinner. Train leaves Broad Street Station at 3.15 P.M. and leaves Glenolden for the return trip at 8.12 P.M.

9:00 P.M. Third Session, House of Delegates, A. PH. A. *Rose Room.*

FRIDAY, SEPTEMBER 17.

9:00 A.M. Second Session, Section on Historical Pharmacy. *South Room.*

9:00 A.M. Second Session, Section on Commercial Interests. *Oak Room.*

9:00 A.M. Third Session, Scientific Section. *Rose Room.*

10:00 A.M. Trip through Historical Section of Philadelphia. For ladies only.

11:00 A.M. Joint Session, Scientific Section and Section on Practical Pharmacy and Dispensing. *Rose Room.*

1:30 P.M. Second Session, Section on Education and Legislation. *Oak Room.*

1:30 P.M. Second Session, Section on Practical Pharmacy and Dispensing. *South Room.*

3:00 P.M. Final Session, House of Delegates. A. PH. A. *Rose Room.*

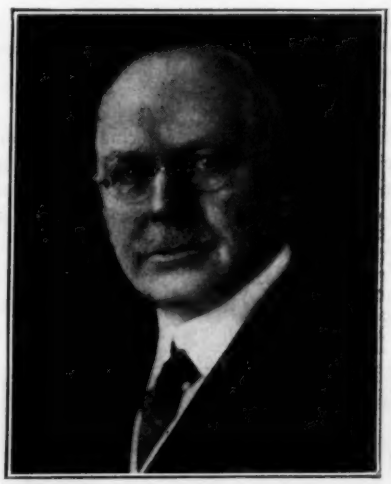
5:00 P.M. Dinner and Entertainment. *Ball Room.*

8:00 P.M. Final General Session, A. PH. A. *Rose Room.*

10:00 P.M. Meeting of the Council, A. PH. A. *Pink Room.*

SATURDAY, SEPTEMBER 18.

9:00 A.M. All-day trip to the Sesqui-Centennial International Exposition. Tickets furnished to those registered.



L. L. WALTON.
Presiding President of 74th Meeting, A. PH. A.

THE GENERAL SESSIONS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

All General Sessions will be held in the Rose Room.

Sessions: Tuesday, September 14, 8:00 P.M.; Thursday, September 16, 1:00 P.M.; Friday, September 17, 8:00 P.M..

TUESDAY, SEPTEMBER 14, 8:00 P.M.—*First General Session of the Association.*

Brief addresses will be made by His Honor, the Mayor of Philadelphia; the President of

the Philadelphia County Medical Society, the Director of Public Health, the President of the National Association of Retail Druggists, the President of the Philadelphia Association of Retail Druggists, the President of the Pennsylvania Pharmaceutical Association, and greetings presented on behalf of the ladies.

Reading of Communications.
Report of the Secretary, E. F. Kelly.
Report of the Treasurer, Charles W. Holton.
Annual Report of the House of Delegates.
The President's Address, Lucius L. Walton.
Address, "The Pharmaceutical Organizations in Great Britain, Their Inter-Relations, and the Necessity for Closer Coöperation between the Pharmaceutical Organizations of the Two Continents," Sir William S. Glyn-Jones.
Adjournment of First General Session.

THURSDAY, SEPTEMBER 16, 1:00 P.M.—*Second General Session of the Association.*

Minutes of the First General Session.
Reading of Communications.
Report of the House of Delegates.

Special Program on Headquarters Building.

H. A. B. Dunning—Chairman Headquarters Building Campaign Committee Presiding.

1. Report of the Chairman of the Headquarters Building Committee, James H. Beal.
2. Report by the Chairman of the Campaign Committee, H. A. B. Dunning.
3. Report of the Publicity Director, E. L. Newcomb.
4. Announcement of new subscriptions.
5. Report by Assistant Publicity Director, E. S. Sater, on Field Work.
6. Five minute addresses by leaders representing different branches in pharmacy in behalf of the Headquarters Building Campaign.
7. *Note.* The Campaign Committee has recommended to the Executive Committee of the Council that a vote on location for the Pharmacy Headquarters Building be authorized at this convention. The Council will make its report on this subject to the House of Delegates which later will report to one of the General Sessions. Ample opportunity will be given for all who wish to speak on this subject to be heard.

Adjournment of the Second General Sessions.

FRIDAY, SEPTEMBER 17, 8:00 P.M.—*Final General Session of the Association.*

Minutes of the Second General Session.
Final Report of the House of Delegates.
Presentation of the Ebert Prize.
Installation of Officers.
Final Adjournment.

HOUSE OF DELEGATES.

Officers: *Chairman*, WM. D. JONES; *Vice-Chairman*, JACOB DINER; *Secretary*, E. F. KELLY.

The sessions of the House of Delegates will be held in the Rose Room of the Bellevue-Stratford Hotel.

Sessions: Tuesday, September 14th, 7:00 P.M.; Wednesday, September 15th, 2:00 P.M.; Thursday, September 16th, 9:00 P.M.; Friday, September 17th, 3:00 P.M.

TUESDAY, SEPTEMBER 14, 7:00 P.M. *Rose Room.*

1. Call to Order.
2. Roll call of Delegates.
3. Reading and adopting of the Minutes.
4. Opening remarks by the Chairman.
5. Appointment of Committee on Nominations.
6. Appointment of Committee on Resolutions.
7. Receipt of the Annual Report of the Council.
8. Receipt of Resolutions, Reports and other Communications, all of which shall be in writing.
9. New business.
10. Adjournment.

Reports of Committees on Patents and Trade Marks, on Status of Pharmacists in Government Service, on Local Branches, on Membership, on State and National Legislation, on U. S. P., on Recipe Book, on Horticultural Nomenclature, on Physiological Testing, on Weights and Measures, on William Procter, Jr., Memorial, on International Pharmaceutical Nomenclature, on Standards of Drugs and Chemical Products, on Coöperative Publicity, on Pre-requisite Legislation, on Biological Products, and on Pharmacy Week, are submitted to the House of Delegates.

WEDNESDAY, SEPTEMBER 15, 2:00 P.M. *Rose Room.*

1. Call to order.
2. Roll call of Delegates.

3. Reading and adopting of the Minutes.
4. Receipt of Reports and other Communications from the Association, the Council and the Section.
5. Receipt of Resolutions, Reports and other Communications, all of which shall be in writing. Reports of the Committees on Nominations, on Resolutions and on Place of Meeting will be received.
6. New Business.
7. Unfinished Business.
8. Nomination of Officers of the Association (three candidates each for the offices of President, First Vice-President and Second Vice-President, and nine candidates for the Council) to be elected by mail ballot.
9. Election of the Honorary President, Secretary and Treasurer of the Association upon nomination of the Council.
10. Election of the Chairman and Vice-Chairman of the House of Delegates.
11. Selection of the Time and Place of the next Annual Meeting.
12. Adjournment.

THURSDAY, SEPTEMBER 17, 9:00 P.M. *Rose Room.*

1. Call to order.
2. Roll Call of Delegates.
3. Reading and adopting of the Minutes.
4. Receipt of Reports and other Communications from the Association, the Council or the Sections.

   Reports of the Committees on Local Branches, on Membership on State and National Legislation, on the U. S. P., on the Recipe book, on Horticultural Nomenclature on Physiological Testing, on Weights and Measures, on the William Procter, Jr., Memorial Fund, on International Pharmaceutical Nomenclature, on Standards of Drugs, and Chemical Products, on Coöperative Publicity, on Pre-Requisite Legislation, on Biological Products, and on Pharmacy Week, will be received.
5. Receipt of resolutions, reports and other communications all of which shall be in writing. Reports of the Committees on Resolutions, on Patents and Trade Marks and on Status of Pharmacists in the Government Service will be received.
6. Unfinished Business.
7. New Business.
8. Adjournment.

FRIDAY, SEPTEMBER 18, 3:00 P.M. *Rose Room.*

1. Call to order.
2. Roll call of Delegates.
3. Reading and adoption of the Minutes.
4. Receipt of Reports and other Communications from the Association, the Council and the Sections.
5. Receipt of Resolutions, Reports and other Communications all of which must be in writing. The final Report of the Committee on Resolutions will be received.
6. Unfinished Business.
7. Installation of the Chairman and Vice-Chairman of the House of Delegates.
8. Adjournment.

PROGRAMS OF THE SECTIONS.

SCIENTIFIC SECTION.

All Sessions will be held in the Rose Room.

Officers: *Chairman*, F. F. BERG; *First Vice-Chairman*, JOHN C. KRANTZ, JR.; *Second Vice-Chairman*, E. V. LYNN; *Secretary*, PAUL S. PITTENGER; *Delegate to the House of Delegates*, J. PAUL SNYDER.

Sessions: Wednesday, September 14, 9:00 A.M.; Thursday, September 15, 9:00 A.M.; Friday, September 16, 11:00 A.M.

PROGRAM.

WEDNESDAY 9:00 A.M.—*First Session.*

1. Chairman's Address, Report of Secretary, General Business.

Papers.

2. *Pharmacology.*
   "The Influence of Digitalis on the Resistance of Guinea Pigs to Poisoning by Diphtheria Toxin," Chas. C. Haskell.
   "Additional Studies on Miré," Thomas S. Githens.
   "Further Studies of the Anæsthetic Properties of Propylene," Lloyd K. Riggs.
   "Permanganate Solution as a Cure for Impetigo," Edward H. Carus.
   "Respiration Test as a Possible Substitute for the Usual Basal Rate Deteriorations," Albert Schneider.
   "Dermographia: Dermographic Tests and Observations," Albert Schneider.

"Some Observations on Digitalis Action," Albert Schneider.

"Influence of Various Radiations on the Potency of Digitalis," David I Macht and John C. Krantz, Jr.

"Nutritional Value and Standardization of Cod Liver Oil and its Non-Saponifiable Fat Soluble Vitamine Concentrate," H. E. Dubin.

"Studies of the Vitamin Potency of Cod Liver Oils. XXI—The Stimulation of Reproduction by Fat Soluble Vitamins," Arthur D. Holmes, A. W. Doolittle and W. B. Moore.

"Digitalis Lutea *vs.* Digitalis Purpurea," Elizabeth Pickering and R. A. Konnerth.

3. *Biologic Assays.*

"The Earthworm Method for Testing Santonin and Related Anthelmintics," Albert Schneider.

"The Possible Influence of Ether Anesthesia on the Accuracy of the Cat Method of Digitalis Assay," H. B. Haag.

"An Assay Method for Digitalis Based on the Relationship Between the Lethal Dose of the Drug and the Weight of the Heart," W. R. Bond.

"A Phyto-Pharmacological Method of Assaying Digitalis," (illustrated by Lantern Slides), David I. Macht and John C. Krantz, Jr.

"The Effect of Certain Defatting Solvents upon the Potency of Ergot," J. C. Munch and E. W. Schwartze.

"The Interpretation of Biologic Assays," Paul S. Pittenger.

THURSDAY, 9:00 A.M.—*Second Session.*

4. *Plant Chemistry.*

"The Glucosides of Caulophyllum Thalictroides," Edward D. Davy and H. P. Chu.

"The Volatile Oils from the Cultivated and Wild Varieties of Mentha Citrata," E. V. Kyser and H. R. Totten.

Caulophyllum Thalictroides," Edward D. Davy and H. P. Chu.

"The Glucosidal Pigment of Bixa Orellana (Annatto)," Lloyd Harris and Edward Kremers.

"The Fatty Acids of Bixa Orellana (Annatto)," Lloyd Harris and Edward Kremers.

"The Volatile Oil of Hypericum Perforatum L.," Emerson R. Miller.

5. *Assay Methods.*

"The Effect of Gelatin on Titration Curves of Various Acids," Ernest Little.

"The Colorimetric Assay of Digitalis," L. W. Rowe.

"Application of Standardized Colored Fluids to Hydrogen-Ion Determinations," H. V. Arny and Abraham Taub.

"The Colorimetric Assay of Strophanthus," L. W. Rowe.

"The Analysis of Camphorated Oil," Charles F. Poe.

"Effect of Acidity on the Activity of Pepsin in the Solid State," W. E. Honsinger, A. L. Dinger and R. E. Schoetzow.

"U. S. P. X Nitrate Test on Solution Ferric Chloride," M. W. Carey and R. E. Schoetzow.

"Assay of Cascara Sagrada," H. Engelhardt.

"Estimation of Chloroform in Chloroform Liniment," R. J. Greenwood.

"Some Observations on the Quantitative Determination of the Anthraquinone Derivatives in Cathartic Drugs," M. C. Tumminkatti and George D. Beal.

"Assay of Atropine Sulphate Tablets and Granulation," W. P. Edwards and R. E. Schoetzow.

6. *Organic Chemistry.*

"Diethylphthalate. V." (Illustrated by Lantern Slides), J. A. Handy and L. F. Hoyt.

"Limonene dibrom nitrosochloride and Derivatives," H. A. Braun and Edward Kremers.

"On the Significance of Methyl-3 Butanol-1 in Peppermint," S. M. Gordon and Edward Kremers.

"The Revision of the Pentanols," S. M. Gordon and Edward Kremers.

"Research Laboratories for the A. PH. A.," Edward Swallow.

7. *Biologic Chemistry.*

"On the Biochemical Significance of the Occurrence of Vanillyl Alcohol in Ginger," P. Valenzuela and Edward Kremers.

8. *Colloidal Chemistry.*

"Some Applications of Colloidal Chemistry to Pharmacy," Pell Broady and C. B. Jordan.

"The Application of the U. S. P. X Yeast Fermentation Test to Colloidal Silver Compounds," H. M. Taylor.

FRIDAY, 11:00 A.M.—*Joint Session Scientific Section and Section on Practical Pharmacy and Dispensing.*

9. *Symposium on U. S. P. and N. F.*
   Report on U. S. Pharmacopœia, Charles H. LaWall.
   Report on National Formulary, Wilbur L. Scoville.
   "The Influence on Medical and Pharmaceutical Practice of Recent Deletions from the U. S. P.," H. H. Rusby.
   Report of the Committee on Ebert Prize, W. L. Scoville, Chairman.

FRIDAY, 9:00 A.M.—*Third Session.*

10. *Pharmaceutic Chemistry.* Manufacturing.
   "The Effect of Benzoic and Cinnamic Acids of the Rate of Development of Rancidity in Lard," Wm. J. Husa and Lydia M. Husa.
   "A New Type of Preparations of Vegetable Drugs," Thomas S. Githens.
   "The Need of Greater Activity in the Making of Analyses of Medicinal Preparations Found on the Open Market and of a Wider Publicity of the Analyses, Frederick J. Wulling.
   "Hydrogenated Cocoanut Oil and Cocoanut Oil Butter as a Substitute for Lard in Iodine Ointments," E. V. Kyser and J. A. Bullock.
   "A Century of the U. S. P. 1820–1920:—Aqua Chlori," A. A. Horwood and Edward Kremers.
   "Glandular Products," Paul S. Pittenger.
11. *Bacteriology, Biology, Botany, Pharmacognosy.*
   "The Living Belladonna," F. B. Kilmer.
   "Variations in the Constituents of Grindelia Grown in Various Sections of the U. S.," C. J. Zufall.
   "The Simplification of Rabies Vaccine," J. C. Peacock.
   "Digitalis Exhibit," Arno Viehoever.
12. Nomination of Officers.
13. Reports of Committees.
14. Unfinished Business.
15. Election and Installation of Officers.
16. New Business.
17. Adjournment.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

(Pharmacopœias, Formularies and Standards.)

All sessions will be held in the Rose Room.

Officers: *Chairman*, H. C. NEWTON; *First Vice-Chairman*, L. R. WAGENER;* *Second Vice-Chairman*, ADLEY B. NICHOLS; *Secretary*, GUSTAV BACHMAN; *Delegate to the House of Delegates*, E. O. LEONARD.

Sessions: Thursday, September 16, 9:00 A.M.; Joint Session with Scientific Section, Friday, September 17, 11:00 A.M.; Friday, September 17, 1:30 P.M.

PROGRAM.

THURSDAY, SEPTEMBER 16, 9:00 A.M.—*First Session.*

1. Chairman's Address, H. C. Newton.
2. Secretary's Report, Gustav Bachman.
3. General Business.

PAPERS.

"The American Pharmaceutical Association Recipe Book," Ivor Griffith.

"How Much Is It Desirable for a Druggist to Know of So-Called Biologic Therapy?" F. W. E. Stedem.

"Some Interesting Facts about Mercurochrome," Fitzgerald Dunning.

"Flavoring Qualities of Vanilla Tinctures," H. M. Taylor and R. A. Konnerth.

"The Evolution of the Tablet-Machine," Edward Kremers and R. A. Konnerth.

"Production: Manufacturers Part in Practical Pharmacy and Dispensing," Josiah C. Peacock.

"Is an Apprenticeship in Pharmacy Worth While?" Daniel O. Wolff.

"Ampuls and Ampul Filling," S. L. Hilton.

"Solid Petroxolin as a Base for Peru Balsam Ointments," J. L. Bredahl.

"Some Notes on the Quality of Pharmaceutical Preparations," R. L. Swain.

4. Appointment of Committees.

FRIDAY, SEPTEMBER 17, 11:00 A.M.—*Joint Session Scientific Section and Section on Practical Pharmacy and Dispensing.*

SYMPOSIUM ON U. S. PHARMACOPŒIA AND NATIONAL FORMULARY.

Report on U. S. Pharmacopœia, Charles H. LaWall.

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* Deceased.

Report on National Formulary, Wilbur L. Scoville.

"The Influence on Medical and Pharmaceutical Practice of Recent Deletions from the U. S. P.," H. H. Rusby.

Report of the Committee on Ebert Prize, Wilbur L. Scoville, *Chairman*.

FRIDAY, SEPTEMBER 17, 1:30 P.M.—*Second Session.*

"The New Pharmacy," F. E. Stewart.

"Fortifying the Prescription Counter," C. H. Stocking.

"A Suggestion that the American Pharmaceutical Association Secure Membership in the American Conference on Hospital Service," W. Wilson McNeary.

"A Prescription Clinic," Adley B. Nichols.

"A Note on the Stability of Solution of Arsenous and Mercuric Iodides," Wilmer H. Schulze.

"Incompatibilities in Prescriptions Containing Epinephrine," Marvin J. Andrews.

"A Study of the Stability of Physostigmine Solutions," John C. Krantz, Jr., and Frank Slama.

5. Unfinished Business.
6. Report of Nominating Committee.
7. Election and Installation of Officers.
8. Adjournment.

Order of Program subject to change.

SECTION ON EDUCATION AND LEGISLATION.

All sessions will be held in the Oak Room.

Officers: *Chairman*, J. G. BEARD; *Secretary*, H. M. FASER; *Delegate to the House of Delegates*, M. N. FORD.

Sessions: Thursday, September 16, 9:00 A.M.; Friday, September 17, 1:30 P.M.

PROGRAM.

THURSDAY, SEPTEMBER 16, 9:00 A.M.—*First Session.*

1. Chairman's address, J. G. Beard.
2. Secretary's Report, H. M. Faser.
3. Appointment of Committees.

PAPERS.

"The Quarterly System for Colleges of Pharmacy," A. R. Bliss, Jr.

"Shall the Mass Production of Pharmacists Be Continued?" Robert P. Fischelis.

"Higher Standards Justified," Frederick J. Wulling.

"Changes in College Curriculum and Legislation," H. C. Christensen.

"The Quota of Pharmacology and Therapeutics in the Medical Curriculum," R. T. Lakey.

"A Comparison of the American Pharmaceutical Association and the National Associations of Closely Related Professions," H. J. Goeckel.

"Pharmacy Plus," Wortley F. Rudd.

FRIDAY, SEPTEMBER 17, 1:30 P.M.—*Second Session.*

PAPERS.

"Recognition of Pharmacy School Credits in Colleges of Arts and Sciences and Graduate Schools," A. R. Bliss.

"Student Health Service at Purdue University," Margaret S. Klemme.

"In 1825," Otto Raubenheimer.

"An Interesting Case," Lyman F. Kebler.

"The Present Status of the Various Systems of Weight in English Pharmacy," William J. Husa.

"A Uniform Pharmacy Law," William Mansfield.

4. Report of Committees.
5. Unfinished Business.
6. Election of Officers.
7. Adjournment.

SECTION ON COMMERCIAL INTERESTS.

All sessions will be held in the Oak Room.

Officers: *Chairman*, AMBROSE HUNSBERGER; *Secretary*, BERNARD M. KEENE; *Delegate to the House of Delegates*, GEORGE JUDISCH.

Sessions: Wednesday, September 15, 9:00 A.M.; Friday, September 17, 9:00 A.M.

PROGRAM.

WEDNESDAY, SEPTEMBER 15, 9:00 A.M.—*First Session.*

1. Chairman's Address, Ambrose Hunsberger.
2. Report of Secretary, Bernard M. Keene.
3. Appointment of Committees.
4. General Business.

PAPERS.

"A Procedure in Prescription Pricing," Leonard A. Seltzer.

"Is the Pendulum Ready to Swing Back?" Robert P. Fischelis.

"The Application of Salesmanship to Proprietary Remedies," J. G. Beard.

"The Cost of Free Goods," W. Bruce Philip.

"Professionalizing Commercialism," Robert J. Ruth.

"Our Problems," Samuel S. Dworkin.

"A Merchandisable Acidophilus Culture," Josiah C. Peacock.

FRIDAY, SEPTEMBER 17, 9:00 A.M.—*Second Session.*

"What Does It Profit You?" P. Henry Utech.

"Exercising Our Perogatives," Samuel L. Hilton.

"What Druggists Ask of an Editor," Walter M. Chase.

"A Research in Advertising," Samuel Wanamaker.

"The Value of the Recipe Book to the Retail Pharmacist," J. Leon Lascoff.

"Popularizing Official Preparations," J. H. Webster.

"Calculating the Retail Price of Drugs, Chemicals and Pharmaceuticals," John Culley.

5. Unfinished Business.
6. Report of Delegate, George Judisch.
7. Election.
8. Installation of Officers. Adjournment.

SECTION ON HISTORICAL PHARMACY.

All sessions will be held in the South Room.

Officers: *Chairman*, L. K. DARBAKER; *Secretary*, M. F. SUDRO; *Historian*, E. G. EBERLE; *Delegate to the House of Delegates*, C. J. GIETNER.

Sessions: Wednesday, September 15, 9:00 A.M.; Friday, September 17, 9:00 A.M.

PROGRAM.

WEDNESDAY, SEPTEMBER 15, 9:00 A.M.—*First Session.*

1. Chairman's Address, L. K. Darbaker.
2. Secretary's Report, W. F. Sudro.
3. Historian's Report, E. G. Eberle.
4. Appointment of Committees.
5. Editor's Report of Progress, History of American Pharmacy, Clyde L. Eddy.
6. Co-Authors' Reports.

PAPERS.

"Activities of W. J. M. Gordon," John Uri Lloyd.

"Tschirch—Master of Pharmacognosy," Otto Raubenheimer.

"The Influence of Henry Milton Whelpley in the Formation of the National Association of Boards of Pharmacy," H. C. Christensen.

"Honors a Physician Pharmacist—Crawford W. Long—the Discoverer of Ether-Anesthesia," Joseph Jacobs.

FRIDAY, SEPTEMBER 17, 9:00 A.M.—*Second Session.*

7. Report of Committees.
8. Election of Officers.
9. Discussion of Headquarters Museum and Library.

"History of Cascara Industry," Thurman J. Starker.

"History of the Mint Industry," C. C. Glover.

"History of Pharmacognosy," Wm. J. Stoneback.

10. Further Discussion of the History of American Pharmacy.
11. Adjournment.

More papers are to be added.

AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY.

TWENTY-SEVENTH ANNUAL MEETING.

All meetings of the Association will be held in the Red Room; Teachers' Conferences in the Green Room.

Officers: *President*, EDWARD H. KRAUS; *Vice-President*, JOHN G. BEARD; *Secretary-Treasurer*, ZADA M. COOPER; *Chairman of Executive Committee*, CHARLES B. JORDAN.

Sessions: Monday, September 13, 10:00 A.M., 2:00 P.M., and 8:00 P.M.; Tuesday, September 14, 2:30 P.M.—Joint Session with National Association of Boards of Pharmacy; Tuesday, September 14, 9:00 A.M.

MONDAY, SEPTEMBER 13, 10:00 A.M.—*Teachers' Conferences. Green Room.*

Chemistry Section, C. C. GLOVER, *Chairman.*
Pharmaceutical Section, JOHN C. KRANTZ, *Chairman.*
Materia Medica Section, R. A. LYMAN, *Chairman.*

MONDAY, 2:00 P.M.—*Continuation of Teachers' Conferences. Green Room.*

MONDAY, SEPTEMBER 13, 3:00 P.M.—*First Session.*

1. Roll Call.
2. President's Address, Edward H. Kraus.
3. Report of Secretary-Treasurer, Zada M. Cooper.
4. Report of Executive Committee, Charles B. Jordan, *Chairman.*
5. Appointment of the Nominating Committee.

PAPERS.

"Merchandising Courses," J. G. Beard.

"The Teaching of Commercial Pharmacy in the School of Pharmacy of the Medical College of Virginia," W. G. Crockett.

6. Reports of Standing Committees:
   - *a* Committee on Higher Educational Standards, D. B. R. Johnson, *Chairman.*
   - *b* Committee on Curriculum and Teaching Methods, W. J. Teeters, *Chairman.*
   - *c* Committee on Activities of Students and Alumni, J. B. Burt, *Chairman.*
   - *d* Committee on Research, Arno Viehoever, *Chairman.*
   - *e* Committee on Investigation of Pharmacy Schools by Carnegie Foundation, W. F. Rudd, *Chairman.*

MONDAY, 8:00 P.M.—*Second Session.*

7. Report of Committee on Curriculum, C. W. Johnson, *Chairman.*
8. Report of Committee on Relation of Boards with Colleges, C. B. Jordan, *Chairman.*
9. Address, Edgar Fahs Smith.
10. Report of Committee on Standards for Classification of Colleges, D. B. R. Johnson, *Chairman.*
11. Report of Representative to Drug Trade Bureau of Public Information, W. F. Rudd.
12. Paper, "Rating Scale for Instructors," C. B. Jordan.
13. Report of Representative on Board of Botanical Abstracts, E. N. Gathercoal.
14. Report of Representative to National Conference on Pharmaceutical Research, J. A. Koch, *Chairman.*
15. Report of Representatives to National Drug Trade Conference, W. F. Rudd, *Chairman.*

TUESDAY, SEPTEMBER 14, 9:00 A.M.—*Joint Session with National Association of Boards of Pharmacy.*

16. Report of the Fairchild Scholarship Committee, E. G. Eberle, *Chairman.*
17. Paper, "Newer Types of Examination," C. B. Jordan.
18. Report of Committees on Relation of Boards with Colleges, C. J. Clayton, C. B. Jordan.
19. Discussion, "How Shall Individual State Boards Determine What Colleges of Pharmacy Not Belonging to the Association Shall Be Approved by Them?" R. A. Lyman, Edward Spease.
20. Discussion, "To What Extent Shall Correlation of Schools and Boards Exist?" J. F. Simon, C. H. LaWall.

TUESDAY, 2:30 P.M.—*Third Session.*

21. Report of Representative to N. A. R. D., A. R. Bliss.
22. Report of Representative to Conference on Narcotic Education, E. F. Cook.
23. Paper, Arno Viehoever.
24. Unfinished Business.
25. Miscellaneous Business.
26. New Business.
27. Executive Session.
28. Adjournment.

TUESDAY, SEPTEMBER 14, 6:00 P.M.

Annual Dinner. (All are welcome. Make reservations by consulting C. B. Jordan.)

PROGRAM, SEMINAR OF PHARMACY TEACHERS.

Teaching Demonstrations:

Emulsions—Adley B. Nichols.
Prescriptions—G. A. Bergy.
Subject to be announced—Clyde M. Snow.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

TWENTY-THIRD ANNUAL CONVENTION AT BELLEVUE-STRATFORD HOTEL, PHILADELPHIA, SEPTEMBER 13 AND 14, 1926.

M. N. FORD, *President,*
Columbus, O.

H. C. CHRISTENSEN, *Secretary,*
Chicago, Ill.

All meetings of the National Association of Boards of Pharmacy will be held in the Rose Room.

PROGRAM.

MONDAY, SEPTEMBER 13, 9:30 A.M.—*First Session.*

1. Call to order, President M. N. Ford.
2. Roll call.
3. Appointment of Committee on Credentials, President M. N. Ford.
4. President's Address, M. N. Ford.
5. Appointment of Committee on President's Address.
6. Report of Executive Committee, Edw. H. Walsdorf, *Chairman.*

7. Report of the Secretary, H. C. Christensen.
8. Report of the Treasurer, J. W. Gayle.
9. Report of Committee on Constitution and By-Laws, W. H. Hankins, *Chairman.*

MONDAY, 2:00 P.M.—*Second Session.*

1. Report of Legislative Committee, John Culley, *Chairman.*
2. Report of Committee on Credentials.
3. Appointment of Nominating Committee.
4. Report of Advisory Examination Committee, H. C. Christensen.
5. Report of Syllabus Committee.
6. Report of Special Committee on Federal Legislation, W. T. Kerfoot, Jr., *Chairman.*
7. Report of Committee on Drug Store Ownership Law, Jacob Diner, *Chairman.*
8. Verbal Report of Vice-Presidents:

   District No. 1, H. M. Lerou.
   District No. 2, A. C. Taylor.
   District No. 3, R. I. Beddoe.
   District No. 4, J. P. Jelinek.
   District No. 5, E. V. Zoeller.
   District No. 6, Wilford Harrison.
   District No. 7, John E. Guess.
   District No. 8, Chas. J. Clayton.
   District No. 9, A. G. Hulett.

TUESDAY, SEPTEMBER 14, 1926, 9:00 A.M.—*Third Session.—Joint Session with The American Association of Colleges of Pharmacy.*

PARTIAL PROGRAM.

Report of the Fairchild Scholarship Committee, E. G. Eberle, *Chairman.*

"Newer Types of Examination," Charles B. Jordan.

Report of Committees on Relation of Boards with Colleges, Charles B. Jordan, Charles J. Clayton.

"How Shall Individual State Boards Determine What Colleges of Pharmacy not Belonging to the Association Shall Be Approved by Them?" Rufus A. Lyman, Edward Spease.

"To What Extent Shall Correlation of Schools and Boards Exist?" J. F. Simon, Charles H. LaWall.

TUESDAY, 2:00 P.M.—*Fourth Session.*

1. Report of Committee on President's Address.
2. Report of Publicity Committee, H. C. Christensen, *Chairman.*
3. Report of the N. A. B. P. Committee on Educational Standards, George Judisch, *Chairman.*
4. Committee on Relations of Boards with Colleges, Charles J. Clayton.
5. Report of Committee on Standards and Requirements for Classification of Colleges of Pharmacy, H. C. Christensen, *Chairman.*
6. Report of Committee on National Certificate, H. C. Christensen, *Chairman.*
7. Report of Special Committees.
8. Unfinished Business.
9. New Business.
10. Report of Nominating Committee.
11. Election and Installation of Officers.

NATIONAL CONFERENCE ON PHARMACEUTICAL RESEARCH.

FIFTH ANNUAL MEETING OF THE NATIONAL CONFERENCE ON PHARMACEUTICAL RESEARCH AT HOTEL BELLEVUE-STRATFORD, PHILADELPHIA, PA., SATURDAY, SEPTEMBER 11, 1926, 9:30 A.M. AND 2:00 P.M.

H. V. ARNY, *Chairman.*
J. C. KRANTZ, JR., *Secretary.*

TENTATIVE PROGRAM.

1. Roll Call.
2. Reports of Officers.
3. Reports of the 10 Standing Committees.
4. Report of Special Committee on Committees.
5. Report of Special Committee on Book of Research Achievements.
6. Reports from Delegates from the Affiliated Organizations, *i. e.*,
   (*a*) Association of Official Agricultural Chemists.
   (*b*) American Chemical Society Division of Chemistry of Medicinal Products.
   (*c*) American Conference of Pharmaceutical Faculties.
   (*d*) American Drug Manufacturers' Association.
   (*e*) AMERICAN PHARMACEUTICAL ASSOCIATION.
   (*f*) American Pharmaceutical Manufacturers' Association.
   (*g*) Bureau of Chemistry, U. S. Department of Agriculture.
   (*h*) National Association of Boards of Pharmacy.

(*i*) National Association of Retail Druggists.
(*j*) National Formulary Revision Committee.
(*k*) Pharmaceutical Laboratory Seminar.
(*l*) Plant Science Seminar.
(*m*) Proprietary Association.
(*n*) U. S. P. Revision Committee.

7. General Discussion on:
(*a*) Census of Research.
(*b*) Graduate Students in Pharmacy and Their Research Work.
(*c*) Research Topics.
(*d*) Research Grants and Prizes.
(*e*) Research Fellowships and Scholarships.
8. New Business.
9. Election.
10. Adjournment.

ENTERTAINMENT PROGRAM.

FOR THE CONVENTION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AND AFFILIATED ASSOCIATIONS.

SATURDAY, SEPTEMBER 11, 7:30 P.M.

Inspection of the American Pharmacy Exhibit in the Medical Science Section, Palace of Education and Social Economy at the Sesqui-Centennial. (Special for the National Pharmaceutical Research Conference.)

SUNDAY, SEPTEMBER 12, 1:30 P.M.

Automobile Trip. (Delaware River Bridge, Parkway, River Drive, Fairmount Park, Wissahickon Drive, Germantown and Suburbs.)

MONDAY, SEPTEMBER 13.

Ladies—Open date for visit to the shopping center.
10:30 P.M. Informal Party on the Bellevue-Stratford Roof, Rose Garden (Music, Dancing and Refreshments.)

TUESDAY, SEPTEMBER 14.

12:30 P.M. Fraternity Luncheons. (See notices at Information Booth.)
Ladies—3:30 P.M. Tea in the Oak Room. Bellevue-Stratford Roof.
10:30 P.M. Dancing and Refreshments. Bellevue-Stratford Roof. Rose Garden.

WEDNESDAY, SEPTEMBER 15.

Ladies—10:00 A.M. Inspection Tour of the Graphic Sketch Club.
12:30 P.M. College Alumni Luncheons. (See notices at Information Booth.)
Ladies—1:00 P.M. Luncheon at the Penn Athletic Club, Rittenhouse Sq.
9:00 P.M. President's Reception and Ball. Bellevue-Stratford Roof.

THURSDAY, SEPTEMBER 16.

Ladies—10:00 A.M. Historic Shrines Trip: Independence Hall, Carpenters Hall, Old Christ's Church, Betsy Ross House, Benjamin Franklin's Grave, Old Quaker Meeting House.
12:00 Noon—Veterans' Luncheon—See notice at Information Booth.
3:00 P.M. Trip to Glenolden: Inspection of Mulford Biological Laboratories and College Botanical Gardens. Field sports, followed by open-air carnival and supper.—Guests of the H. K. Mulford Company.

FRIDAY, SEPTEMBER 17.

Ladies—10:00 A.M. Trip to Valley Forge and Luncheon.
6:00 P.M. Banquet and Entertainment. Ball Room, Bellevue-Stratford Hotel.

SATURDAY, SEPTEMBER 18.

AMERICAN PHARMACEUTICAL ASSOCIATION OFFICIAL DAY at the Sesqui-Centennial International Exposition.
10:00 A.M. Trip to the Exposition.

OFFICERS OF STATE PHARMACEUTICAL ASSOCIATIONS 1926–1927.

(*Continued from p. 604, July* JOURNAL.)

(Secretaries of associations are asked to make corrections and send in list of officers, and name of next convention city.)

COLORADO.

Colorado Pharmaceutical Association held a well-attended meeting, at Boulder, June 22–24. The following officers were elected:

President, Justin A. Van Lopik, Castle Rock.
First Vice-President, Fred F. Koch, Colorado Springs.

Second Vice-President, William J. Bishop, Greeley.

Secretary, Charles J. Clayton, Denver.

Treasurer, Julius F. Earnest, Denver.

CONNECTICUT.

Clyde L. Eddy and Eugene Brokmeyer were among the speakers at Connecticut Association meeting. The following officers were elected:

President, James W. Lynch, Hartford.

First Vice-President, Fred W. Lake, Waterbury.

Second Vice-President, Alexander Aitken, Stamford.

Secretary-Treasurer, P. J. Garvin, New Haven.

DELAWARE.

Delaware Pharmaceutical Association elected the following officers:

President, A. S. Williams, Laurel.

Vice-Presidents, Geo. W. Brittingham, New Castle; Harry Jones, Smyrna; Arthur H. Morris, Lewes.

Secretary, Lawrence L. Saunders, Wilmington.

Treasurer, Peter P. Bienkowski, Wilmington.

INDIANA.

Indiana Pharmaceutical Association voted favorably for a new Pharmacy Building at Purdue University. The following officers were elected:

President, Herman Bill, Fort Wayne.

First Vice-President, Ben Porter, Logansport.

Second Vice-President, S. S. Hise, Terre Haute.

Third Vice-President, Louis Tepe, Evansville.

Treasurer, Harry W. Miller, Terre Haute.

Secretary, William A. Oren, Indianapolis.

MICHIGAN.

Officers elected at Michigan State Pharmaceutical Association are as follows:

President, D. W. Houser, Detroit.

First Vice-President, Howard Hurd.

Second Vice-President, E. T. Webb, Casnovia.

Secretary, Robert Turrill, Croswell.

Treasurer, E. C. Varnum, Jonesville.

Members of the Executive Board, Charles H. Frantz, Bay City; George Moore, Cairo.

MISSISSIPPI.

Mississippi Pharmaceutical Association selected Meridian for the next meeting place. The following are the officers for the ensuing year:

President, J. T. Mathis, Leland.

First Vice-President, J. W. Pollard, Jackson.

Second Vice-President, Miss Adele Stigler, Yazoo City.

Secretary-Treasurer, A. S. Coody, Jackson.

NEW HAMPSHIRE.

President-Elect Theodore J. Bradley, Harold Whitehead, Thomas R. Varick and Hon. Charles M. Dale were speakers at the New Hampshire meeting. The following officers were elected:

President, Frank R. French, Tilton.

First Vice-President, Eugene Sullivan, Concord.

Second Vice-President, A. F. Precourt, Manchester.

Secretary, D. L. Hallisey, Nashua.

Treasurer, Edgar L. Goulett, Manchester.

NEW YORK.

President Bruce T. Furnival in his address discussed live topics of the day—he favored close observation of liquor records, and annual registration of pharmacist; he did not favor limitation of the number of drug stores. The annual registration of pharmacists was not endorsed by the Association. The following officers were elected:

President, Dr. George C. Diekman, New York City.

Vice-Presidents, Walter B. Tongue and Pincus Herz.

Secretary, Edward S. Dawson, Syracuse.

The Association will meet next year at the Thousand Island House, Alexandria Bay, N. Y. A number of interesting and valuable papers were read. A resolution was passed favoring the limitation of the number of drug stores according to the needs of the section in which it is sought to establish a new pharmacy.

NORTH CAROLINA.

Brief reference was made to the meeting of North Carolina last month. Speakers at the opening session in New York City were Public Health Commissioner Louis I. Harris, Ex-Presidents H. V. Arny and C. W. Holton. Secretary J. G. Beard responded to the welcome. The following were elected officers for the ensuing year:

President, Norman W. Lynch, Charlotte.

Vice-Presidents, C. L. Eubanks, Chapel

Hill; R. R. Copeland, Ahoskie; Polk C. Gray, Statesville.

Treasurer, J. G. Beard, Chapel Hill.

Assistant Secretary-Treasurer, C. M. Andrews, Hillsboro.

NORTH DAKOTA.

North Dakota Pharmaceutical Association elected the following officers for the ensuing year:

President, N. N. Brakke, Melville.

First Vice-President, Glenn M. Cook, Fargo.

Second Vice-President, F. A. Maser, Glen Ullen.

Secretary, W. F. Sudro, Fargo.

Treasurer, W. S. Parker, Lisbon.

Local Secretary, F. P. Homan, Mandan.

OREGON.

Oregon Pharmaceutical Association elected the following officers:

President, L. B. Russell, Portland.

First Vice-President, Lynn B. Ferguson.

Second Vice-President, S. A. Matthieu, Portland.

Third Vice-President, Harry Weis, Salem.

Secretary, Frank S. Ward, Portland.

Treasurer, John Laue, Portland.

VERMONT.

President-elect Theodore J. Bradley and Prof. E. H. La Pierre were speakers at Vermont Pharmaceutical Association at Lake Morey Club, Fairlee. The former referred to Andrew Craigie of Boston and the late Tom Platt as pharmacists. The following officers were reëlected:

President, W. Chapman, Fairlee.

Vice-Presidents, W. H. Saunders, H. M. Louthood and J. L. Slafter.

Secretary-Treasurer, F. W. Churchill, Proctor.

WASHINGTON.

Resolutions were adopted by the Washington State Pharmaceutical Association opposing new laws intending to create a separate governmental bureau of the Prohibition Department. Prohibition administrator, Roy C. Lyle, stated that the druggists of Washington were lending full coöperation to the enforcement of the prohibition law.

Among the speakers of the Convention were Dean Charles W. Johnson, Dean P. H. Dirstine and Carl Weeks.

The following officers were elected:

President, E. L. Smalley, Walla Walla.

Chairman of the Board of Trustees, F. R. Robertson.

Secretary, H. W. Ayres, Seattle.

Treasurer, W. E. Hinman, Seattle.

WISCONSIN.

Carl Weeks, Dr. F. J. Wulling and Dr. Edward Kremers were among the speakers at the Wisconsin meeting. E. L. Newcomb spoke on price standardization and Dr. K. K. Chen on "Drug Business in China." The following officers were elected:

President, William Rheineck, Milwaukee.

First Vice-President, George Sontag, Neilsville.

Second Vice-President, C. N. Euler, La Crosse.

Third Vice-President, F. W. Mueller, Oshkosh.

Secretary, E. B. Heimstreet, Lake Mills.

Treasurer, Henry Rollmann, Chilton.

FLORIDA.

Florida Pharmaceutical Association held its convention in Jacksonville, with an attendance of about 500. The AMERICAN PHARMACEUTICAL ASSOCIATION was represented by delegates W. M. Hankins, D. W. Ramsaur and W. D. Jones. The following officers for the ensuing year were elected:

President, J. K. Atwood, Jacksonville.

First Vice-President, L. C. Smith, Miami.

Second Vice-President, Laurie Taylor, Eustis.

Secretary-Treasurer, J. H. Hansbrough, Tampa.

Miami was selected as the next convention city.

Secretary E. F. Kelly, A. PH. A., attended the meetings and delivered an address; Assistant Publicity Director E. S. Sater spoke in behalf of the A. PH. A. Headquarters and received fine support. Other speakers were Carl Weeks, who discussed business subjects; Sam Dunlap spoke on "Merchandizing Problems;" and Frank Norris presented "Sound Credit Methods." Among the contributors of papers were: L. S. Brigham, Prof. E. J. Stuhr, Dr. F. J. Bacon, A. W. Morrison, Prof. L. M. Chew.

OHIO PHARMACEUTICAL ASSOCIATION.

Ohio Pharmaceutical Association elected the veteran—Alfred DeLang, of Cincinnati—Honorary President of the organization. The recommendation was made by President Pollack in his address.

Among the speakers at the meeting were Secretary E. F. Kelly of the A. PH. A.; Samuel C. Henry, Secretary of the N. A. R. D. Other addresses were made by J. Francis Martin on

Four Secretaries.—Left to Right—M. N. Ford, N. A. B. P.; E. F. Kelly, A. PH. A.; Theodore D. Wetterstroem, Ohio; Samuel C. Henry, N. A. R. D.

"Where is Your Business Going?" L. E. Buisch spoke on "Ways and Means of Selling." Editor Jerry McQuade addressed the convention on "Price Maintenance Measures." Secretary E. L. Newcomb, of the National Wholesale Druggists Association, also delivered an address.

The Legislative Committee submitted a proposal for the enactment of a partial formula disclosure law and also recommended suitable legislation to define what a recognized college of pharmacy is.

The following officers were elected:

President, Otto C. Kistner, Cincinnati.

First Vice-President, Otto Moosbrugger, Dayton.

Secretary, Theodore D. Wetterstroem, Columbus.

Treasurer, L. W. Funk, Columbus.

CANADIAN PHARMACEUTICAL ASSOCIATION.

Among the speakers at the meeting of the Canadian Pharmaceutical Association at Montreal, August 10, were Sir William S. Glyn-Jones and Dr. H. V. Arny, Past-President of the A. PH. A.; the latter spoke on the "Needs of Pharmacy." He urged pharmacists to uphold the dignity of their profession and regretted the increasing prominence given to side-lines of merchandise.

President Harrison, in his address, reviewed business conditions and considered that they were much better than they had been for many years. He advocated higher standards for pharmacy and a course of four years at the University.

The following officers were elected for the ensuing year:

Honorary Presidents, John Higginbotham, Lethbridge; J. F. Robert, Toronto; Charles E. Scarff, Montreal.

Chairman of the Council, G. A. Burbridge, Halifax.

Secretary-Treasurer, Dr. R. B. Stanbury, Toronto.

Solicitor, F. Mearns.

THE PHARMACIST AND THE LAW.

RIGHT TO SELL PATENT MEDICINES SUSTAINED.

A Wisconsin case in which the question was involved as to whether a pharmacist could sell a proprietary medicine when requested to make the sale of a medicine for rheumatism was sustained in the decision of Judge Thomas J. Mahon of Milwaukee. The judge pointed out that Section 15,104 of the statutes of the State of Wisconsin provides that no person shall retail, compound, or dispense drugs, medicines, or poisons unless he be a Registered Pharmacist. Sub-section three of this section provides further that this shall not interfere with the dispensing of drugs, medicines or other articles by physicians, nor with the sale of proprietary medicines in sealed packages, labeled to comply with the Federal Pure Food and Drug Law, with the directions for using and the name and location of the manufacturer, etc.

The judge held that to find the defendant guilty of a violation of the Medical Practice Act under the circumstances of the case would be to brand every druggist in the State who sells to a customer a proprietary remedy for some common ailment a violator of this same Medical Practice Act. If this were the purpose of the legislature in passing the Medical Practice Act, the Act itself would indeed be of doubtful constitutionality.

T. D. 3888.

T. D. 3888, which required that local deliveries of medicinal liquors to retail druggists should be made through a bonded local express company rather than with the use of the vendor's trucks, has been amended. The amendment reads:

"All local transportation of medicinal spirits, except alcohol, from bonded warehouses and distillers' distributing agencies to wholesale druggists and retail druggists must be either by a railway express company, or by a duly bonded and permitted commercial carrier performing general transportation terminal service in connection with rail or water carriers. Administrators will approve only railroad or boat transportation for long hauls, and in the absence of available local bonded transporters, administrators will authorize transportation by wholesale or retail druggist vendees, or by such other form of delivery as is consistent with the safe delivery of the spirits and their protection from diversion or misuse."

AMENDED RESALE PRICE MAINTENANCE ORDER.

The Circuit Court of Appeals for the 8th Circuit has amended an order of the Federal Trade Commission requiring a manufacturer of cereal breakfast foods to cease its system of maintaining resale prices. Under this amendment the Court holds that it was an error for the Commission to prohibit the manufacturer to use a mere announcement of refusal to sell to those who do not maintain prices. The Court's amendments in other respects are described below.

"*Appealed Case—Resale Price Maintenance.* The United States Circuit Court of Appeals for the 8th Circuit has amended the Commission's order in its Docket No. 890 (Cream of Wheat Company *vs.* Federal Trade Commission). The Commission's order had prohibited the use of coöperation with customers or dealers in maintaining resale prices, as well as the use of the respondent's own sales agents for this purpose. The Court overruled the Commission with respect to the respondent's own sales agents and further modified the Commission's order by adding the following provision to paragraph 6 of the Commission's order: Provided, however, that nothing herein shall prevent the respondent from performing the following acts: (*a*) Requesting its customers not to resell Cream of Wheat at less than a stated minimum price. (*b*) Refusing to sell to a customer because he resells below such requested minimum price or because of other reasons. (*c*) Announcing in advance its intention thus to refuse. (*d*) Informing itself, through its soliciting agents and through publicly circulated advertisements of customers which come to its attention, and through other legitimate means, without any coöperative action with its other customers or other persons, as to the prices at which Cream of Wheat is being sold. The other provisions of the Commission's order which remain unchanged prohibit (1) the use of contracts or agreements with customers on resale prices, (2) a scheme of coöperation in securing information from its customers as to price cutters, (3) notification of other customers in good standing that they shall not sell to price cutters, and (4) requiring an extra price for its product from price cutters in order to secure from them assurances of their future observance of resale price.—N. W. D. A. *Bulletin*, No. 119."

BOOK NOTICES AND REVIEWS.

Allen's Commercial Organic Analysis. 5th edition, Editors. Samuel S. Sadtler, S.B., Elbert C. Lathrop, A.B., Ph.D., and C. Ainsworth Mitchell, M.C., F.I.C. Volume IV. 8 illustrations. 8 vo. Pp. X + 648 pages. P. Blakiston's Son & Co., Philadelphia. Cloth, $7.50.

The subject matter covered is practically the same as in the fourth edition. Much new matter has been added and some obsolete analytical methods have been deleted. The grouping of the topics, quite different from that followed in the former editions is a happy one.

"Special Characters of Essential Oils," the first chapter, has been re-written by E. K. Nelson and G. A. Russell. Here one finds listed over sixty volatile oils, their description, source, methods of examination, chiefly with a view of detecting adulteration. At the end of this chapter is found a table comprising 226 volatile oils giving the source, specific gravity, optical rotation, characteristics and certain physical constants and their chief constituents.

Chapter four, revised by Ernest J. Parry, B.Sc., F.I.C., F.C.S., treats of "The Constituents of Essential Oils and Allied Sub-

stances." Here are found the descriptions, physical constants, formulas and chemical behavior of the many different kinds of substances existing in volatile oils, *viz.* hydrocarcarbons, alcohols, phenols and phenolic compounds, aldehydes, ketones, esters, nitrogen compounds, etc.

The fifth chapter by the same author concerns itself with "The General Characters and Analysis of Essential Oils." While in the first chapter, methods for examining individual oils are given, in this chapter, general properties and methods are described. Brief *résumés* of the general methods of extraction and composition and general characteristics are followed by a very complete discussion of the methods for the detection and determination of the usual constituents.

In the second chapter, the same author discusses the more important "Resins" with the same thoroughness and detail so conspicuously evident in the chapters on volatile oils.

"India-Rubber, Gutta-Percha, Balata and Allied Substances" is the title of the third chapter of which John B. Tuttle, B.Sc., is the author. Here are found the description, source, properties, methods of analysis of the different kinds of rubber, reclaimed rubber and rubber substitutes. This chapter appears to be very complete.

References are numerous, the illustrations of apparatus are usually specific and really helpful, the type is easily read, the book work, as in the other volumes, very good, and while the size appears the same as its immediate forerunner, almost two hundred additional pages have been added.

In the forefront is found complete table of contents of volumes I, II and III. Volume IV will be a very valuable addition to the library of the analytic chemist, teacher, perfumer. Those having to do with resins or rubber will also find it indispensable.—JEANNOT HOSTMANN.

Caspari's Pharmacy. A Treatise on Pharmacy for Students and Pharmacists. By Charles Caspari, Jr. Seventh edition. Thoroughly revised by E. F. Kelly. Illustrated with 263 engravings. 663 pp. Published by Lea & Febiger, Philadelphia. Price $7.00.

"Caspari's Treatise on Pharmacy" is a well-known and established Pharmacy textbook and needs no introduction. The seventh edition naturally includes changes from the sixth and the users of this text are interested in knowing about the improvements made. In size the seventh edition is smaller than the sixth. This is due to the elimination of Part III. The preface offers the following remarks relative to this deletion; "With the extension of the course in pharmacy to a minimum one of three years, the student will receive a better training in chemistry before advancing to the study of applied pharmacy and will, as a result, be better prepared to understand the chemistry involved in the manufacture of medicinals. It has, therefore, been considered advisable and timely to omit Part III (pharmaceutical chemistry) from this edition and to devote the text entirely to the study of general and practical pharmacy."

A comparison of the two editions shows that Parts I and II of the 6th comprise 39 chapters totalling 554 pages while the 7th (representing Parts I and II) is comprised of 42 chapters totalling 621 pages of text material, showing an increase of three chapters or 67 pages of text. New chapters introduced are Chapter XL—"Antitoxins, Vaccines, Glandular Products and Digestive Ferments" (10 pp.); Chapter XLI—"Standardization of Drugs, Chemicals and Preparations as to Their Strength" (29 pp.). Some of the information of these two chapters was included in Part III of the 6th edition. The remaining additional chapter resulted from the enlargement and division of Chapter XIX—covering "Mixtures and Incompatibility." As to some of the individual chapters; Chapter I—"Pharmaceutical Standards" has been completely rewritten, enlarged and presented in a more comprehensive form. Chapter XIV—"Classification of Materials Used in Pharmacy," consists for 40 pages as compared with 17 of the 6th edition. Again a portion of this was contained in Part III of the former edition.

Part II—PRACTICAL PHARMACY offers a decided improvement over the same in the 6th edition. Not only does it contain a comprehensive summary of both the U. S. P. and N. F. products but it also includes those deleted from the U. S. P. IX and not introduced into the N. F. V, and those deleted from the N. F. IV. This additional information, besides being of value in itself, offers the student a better understanding of the relation between the two texts and the changes in revision. One phase of information featured by the *Treatise* is offered under "Special Remarks." Under this heading general information relative to the product is given. This may be about the chemistry involved, its history, common uses, etc

More information of this type is desirable in textbooks. It would be unnatural if a text of this size contained no "faults." However, they are of no special importance outside of taking up space and upsetting "uniformity." Thus in some instances the paragraphs under Special Remarks are captioned by the English Title; then again the Latin title is used with the English title and the synonym following in Italics. (See Solutions, Elixirs.) Inasmuch as a comprehensive synonymy is included in the tabular summary any one title would suffice under the "Special Remarks." Again, the tabular summary includes a general statement as to the ingredients and method used for the preparation. This information is sometimes repeated under "Special Remarks." Whereas there is no harm, but possible good in repetition, too much of this increases the initial cost of the text and may interfere with its general usage. It goes without saying that the new edition contains information relative to new products and methods introduced into the U. S. P. X and N. F. V, as well as many additional statements and paragraphs through the text resulting from the advances made in the pharmaceutical sciences, since the appearance of the sixth edition.

The following subjects are considered in Part I: "Pharmaceutical Standards," "Weights and Measures," "Specific Gravity, Specific Volume and Viscosity," "Heat," "Light," "Collection and Preservation of Crude Drugs," "Mechanical Subdivision of Drugs," "Solution," "Extraction or Partial Solution," "Separation of Non-volatile Matter," "Separation of Volatile Matter," "Sterilization," "Crystallization," "Classification of the Materials Used in Pharmacy."

PRACTICAL PHARMACY is considered in Part II in the following Chapters: "Waters," "Solutions or Liquors," "Infusions and Decoctions," "Emulsions," "Mixtures, Magmas, Gargles," "Pharmaceutical, Chemical and Therapeutic Incompatibility," "Syrups," "Mucilages, Honeys, Juices, Glycerites and Vinegars," "Elixirs and Wines," "Spirits or Essences," "Tinctures," "Fluidextracts and Fluidglycerates," "Extracts," "Oleoresins and Resins," "Powders," "Granular Effervescent Salts," "Pills," "Confections and Lozenges," "Tablets," "Capsules, Cachets and Ampuls," "Collodions," "Liniments, Petroxolins, Lotions and Oleates," "Ointments and Cerates and Allied Preparations," "Plasters and Plaster Mulls," "Suppositories and Sprays," "Antitoxins and Vaccines, Glandular Products and Digestive Ferments," "Standardization of Drugs, Chemicals and Preparations as to Their Strength," "The Prescription."—H. A. LANGENHAN.

Remington's Practice of Pharmacy. Seventh edition. By E. Fullerton Cook and Charles H. LaWall. Publishers, J. B. Lippincott Co., Philadelphia. 2090 text pages; illustrated throughout. Price $10.00.

Since its first appearance in 1885, "Remington's Practice of Pharmacy" has occupied an important place in the pharmacist's library. It is probably better known than any other treatise on pharmacy, both as a general reference book for the practicing pharmacist and as a textbook for students. The present volume (7th ed.) therefore comes as no stranger, but even those acquainted with earlier editions will be surprised by the comprehensive character of the present edition. No field of pharmaceutical knowledge and practice has been overlooked in bringing together this vast store of information in useful, well-arranged form.

For the student, anxious to acquire the knowledge necessary to serve the public as pharmacist and as guide for those engaged in the profession, there is probably no single more complete textbook and reference work on the art of pharmacy, the sciences related thereto and the business methods employed in its daily pursuit. Its scope is broad, in fact so broad that it is difficult to review it adequately. Opening with a brief but illuminating historical introduction going back to man's earliest knowledge of medicine, it proceeds to the intricacies of the modern practice of the pharmacist as dispenser, analyst and manufacturer, as a factor in community health service and as business man, merchant and citizen. To those outside of the profession but interested in it, it should give an interesting picture and splendid understanding of the service rendered to the public by the pharmacist as an individual and by the profession as a whole. The text and index require 2090 pages consisting of 126 chapters divided into 17 parts. There are 805 illustrations. It is printed on good paper but sufficiently thin to avoid unwieldiness.

After the historical introduction and brief discussion of Pharmacopœias and other standard books on pharmacy, somewhat over 200 well-illustrated pages are devoted to a comprehensive discussion of the technical operations in pharmacy. The fundamental principles and physical laws underlying these operations are

quite thoroughly treated and considerable attention is given to the description, use, care and choice of utensils, apparatus and equipment. A large number of minor points and details in technic, usually acquired only through long experience and practice but quite necessary to successful operation, are given. While operations on the scale usually conducted in a pharmacy receive major consideration, large scale operations and equipment are not overlooked.

Parts III, IV and V, about 960 pages, are devoted to galenical preparations, inorganic compounds and organic chemicals and substances, respectively, and represent a thoughtfully classified discussion of U. S. P. X, N. F. V and many unofficial products. The arrangement and treatment is similar for all three parts and appears logical and practical. For instance, under Part V we find chapters on: "Theory of Organic Chemistry," "The Cellulose Group," "Coloring Principles," "Alcohols and Their Derivatives," "Volatile Oils," "Alkaloids," "Vitamins," etc., etc. Each chapter opens with a general discussion of the subject and then proceeds with a discussion of the official products coming under that classification and, in turn, arranged according to their natural relation. For instance, the volatile oils are grouped according to the plant family from which they are derived, and we find Peppermint Herb, Oil of Peppermint, Menthol and Camphorated Menthol discussed in successive paragraphs. This brings a vegetable drug and a pharmaceutical preparation under a chapter on volatile oils, but the arrangement has obvious advantages for the student and pharmacist and in no wise interferes with the use of the book as a reference work, as a complete alphabetical index is provided. The information given under the individual product goes further than that given in the U. S. P. or N. F., but is not quite as detailed as that generally found in a dispensatory. At the end of the chapter the unofficial products are discussed somewhat more briefly.

Part VI, "Perfumery and Cosmetics," furnishes in about 40 pages an unusually interesting and instructive treatment of the subject with some practical formulas for various odors and each of the popular classes of toilet products.

There is a good chapter each on commercial law and specific laws governing pharmacy.

About 160 pages that are well worth any drug store proprietor's time are devoted to "Business Requirements of Pharmacy." It covers Administration, The Store as a Place of Business, Buying, Selling, Advertising and Accounting. It is illustrated with pictures of store interiors and reproductions of various useful forms, etc.

An equal amount of space is devoted to "The Pharmacist as an Analyst." This part discusses the qualifications of the pharmacist for such work and gives detailed methods for the assay, testing and standardization of drugs, chemicals and biologics. There is a very good chapter on "Urine Analysis." Reagents are described and formulas given for test solutions and diagnostic reagents.

Part X discusses control methods employed in large scale operations.

Part XI is devoted to "The Professional and Prescription Pharmacist." As might be expected, it is thorough, requiring about 230 pages divided into 19 chapters. The prescription itself is taken up in considerable detail and the filling of prescriptions is discussed from physical equipment and fixtures to incompatibilities. A separate chapter is devoted to each class of extemporaneous preparations that a pharmacist may be called upon to prepare, such as Emulsions, Capsules, Pills, Tablets, Coating of Pills and Tablets, Suppositories, Surgical Dressings, etc. These chapters are very instructive and well-illustrated and should prove invaluable to both student and pharmacist.

Part XII briefly covers the essentials of Homeopathic Pharmacy.

"The Pharmacist in Community Health Service." Under this title Part XIII takes up Household Pests and Their Elimination and Disinfection, two subjects in which the pharmacist is daily called upon to give assistance. The information assembled in these chapters is practical and to the point and will surely prove of much value. So far as we know, this is the first time that it has been thus assembled in accessible form.

Biologics have acquired a very important position in medicine, hence the discussion of their scientific basis as well as immunity, found in Part XIV, should be interesting to the pharmacist. This part also takes up the various classes of these products available to-day and gives a description, method of preparation and use of the individual products.

Toxicology and Antidotes are discussed briefly in Part XV.

Part XVI is devoted to a laboratory course

in Manufacturing Pharmacy and Dispensing.

Part XVII is a glossary of uncommon pharmaceutical and technical names, terms or substances.

There seems to be no question but that the hope of the authors of this edition as expressed in the preface will be fulfilled, namely, "that it will serve its day and meet the needs of this generation as fully as did the first volume when presented by its illustrious author, Joseph P. Remington, in 1885."—F. W. NITARDY.

The Akademische Verlagsgesellschaft, Murkgrafenstr. 4 Leipzig, well-known publishers of scientific works, submitted the 3 following books for review:

Theorie und Praxis der Massanalyse. Von Alexander Classen, under Mitwirkung von H. Cloeren. Octavo. 772 pp. Cloth. Mk. 15.

The French pharmacist Louis Nicolas Vauquelin, director of the École Supérieure de Pharmacie in Paris from its foundation in 1803 until his death in 1829, is generally named as the originator of Volumetric Analysis. Besides, Gay-Lussac deserves credit for having thoroughly tried out and introduced many volumetric methods, thereby replacing gravimetric analysis to some extent. However, it remained for the German Apotheker, Carl Friedrich Mohr (1806–1879) in Coblenz on the Rhine to become the real father of Volumetric Analysis by his many improvements that bear his name and the publication of his "Lehrbuch der chemisch—analytischen Titriermethode," Braunschweig 1855, 1862 and 1877.

The volume before us from the pen of an authority on this subject, Prof. Dr. Alexander Classen is a true successor to the older Mohr. Its division is as follows: General Principles, Indicators, Apparatus, Titration, Determinations by Neutralization, Alkalimetry and Acidimetry; Determinations by Oxidation and Reduction; Determination by Precipitation. These chapters are followed by a supplement and numerous tables occupying pp. 728 to 750. The Table of Contents is very complete and forms 23 pages in double columns. The work is indeed a real contribution to this field of chemistry. The treatment is modern throughout and everything is presented in such a manner so as to be readily understood. It is a great book, by a great man, on a great subject. Let us hope that the "Classen" will become better known on this side of the Atlantic

Vorlesungen über die Geschichte der Chemie. Von Prof. Dr. Richard Meyer. Lex. 467 pp. Cloth. Mk. 15.

As a motto to the book the author uses a quotation from a letter by Emil Fischer to him, which freely translated and abbreviated reads: "Science is but a product of human work, closely associated with the life of the workmen." The author, a brother of the late Victor Meyer, is professor of History of Chemistry at the Technical High School in Braunschweig, and herewith publishes his lectures in book form. The following few chapter headings which the referee has selected will give an idea of the thoroughness of the work.

Early Chemistry to the Birth of Alchemy; The Age of Alchemy; The Age of Iatro—Chemistry; The Age of the Phlogiston Theory; Period of Lavoisier; Dalton and his Atomic Theory; Development of Organic Chemistry; the Benzol Theory; the Periodic System; Stereochemistry; Important Discoveries in the second half of the 19th Century; The Rare Gases; Radioactivity; Relation between Chemical Constitution and Physical Properties; Progress of Organic Chemistry; the Chemical Industries in the 19th and 20th Centuries.

The Author herewith presents a real History of Chemistry for the earliest time to our present period, including the growth of chemical knowledge during recent times. Richard Meyer's Vorlesungen fully deserves a place next to Hermann Kopp's and Ernst von Meyer's "Geschichte der Chemie."

Die Methoden der Theoretischen Physik. Von Felix Auerbach. Lex. 436 pp. Mit 150 Figuren. Cloth. Mk. 15.

Within the last three centuries, physics and quite especially theoretical physics has made great strides, so as to make it a distinct science. The well-known author, an authority on this subject has laid down in 119 chapters everything pertaining to Theoretical Physics. The object of physics is the study of the phenomena presented to us by bodies. In early times the question was "What happens?" In the next period the question arose, "Why does this happen?" At the present time the question is "Why does not the opposite happen?" Auerbach in his clear logical style, which never leaves the reader in doubt as to his meaning, has written a book, which should be appreciated by every student of theoretical physics. The 150 illustrations help to visualize at a glance the sometimes complicated subject.

This feature of the work is very valuable to both student and teacher. The index comprises four double-column pages.

We wish the book the best of success.—OTTO RAUBENHEIMER, PH.M.

U. S. Dispensatory, 21st edition has been published by J. B. Lippincott Company. The editors are Dr. H. C. Wood, Jr., Professor of Pharmacology and Therapeutics at the University of Pennsylvania; Dean C. H. La Wall, of the Philadelphia College of Pharmacy and Science; and H. W. Youngken, Professor of Botany, Pharmacognosy and Materia Medica at the Massachusetts College of Pharmacy. Special contributors include Dr. John F. Anderson and Prof. Ivor Griffith. The price, bound in buckram, is $15.

A review will appear in next issue of the JOURNAL.

Short Tests for Sets of Laboratory Weights. By A. T. Pienkowsky, Associate Physicist, Bureau of Standards, Department of Commerce. Issued as Scientific papers of the Bureau of Standards Number 527. Single copies, 10 cents each.

Three kinds of tests are outlined: First, rough checks for gross errors such as can be detected by simply checking duplicate weights against each other or by comparing a few weights with the sum of those smaller weights whose sum equals the larger weight; second, the comparison with each other of just enough weights and combinations of weights so that the value of each weight can be computed from a standard weight the size of the largest weight in the test; third, the comparison of a sufficient number of weights or combinations so that the agreement of various results will serve as a check against any serious mistake in the observations.

If no standards are available, "relative" values may be found with practically no change in the procedure. The effect of inequality of the arms of the balance beam is eliminated by the method of combining the weighings. Therefore, ordinary "direct" methods of weighing may be used.

All multipliers and divisors have been reduced to one figure, and the numbers used in the computations need seldom be larger than three significant figures. Numerical examples illustrate the computations. Every detail of the computations is indicated in full, even though this adds somewhat to the apparent complexity.

An accuracy sufficient for most work can be obtained without detailed corrections for the buoyant effect of the air by attention to the notes given on this subject.

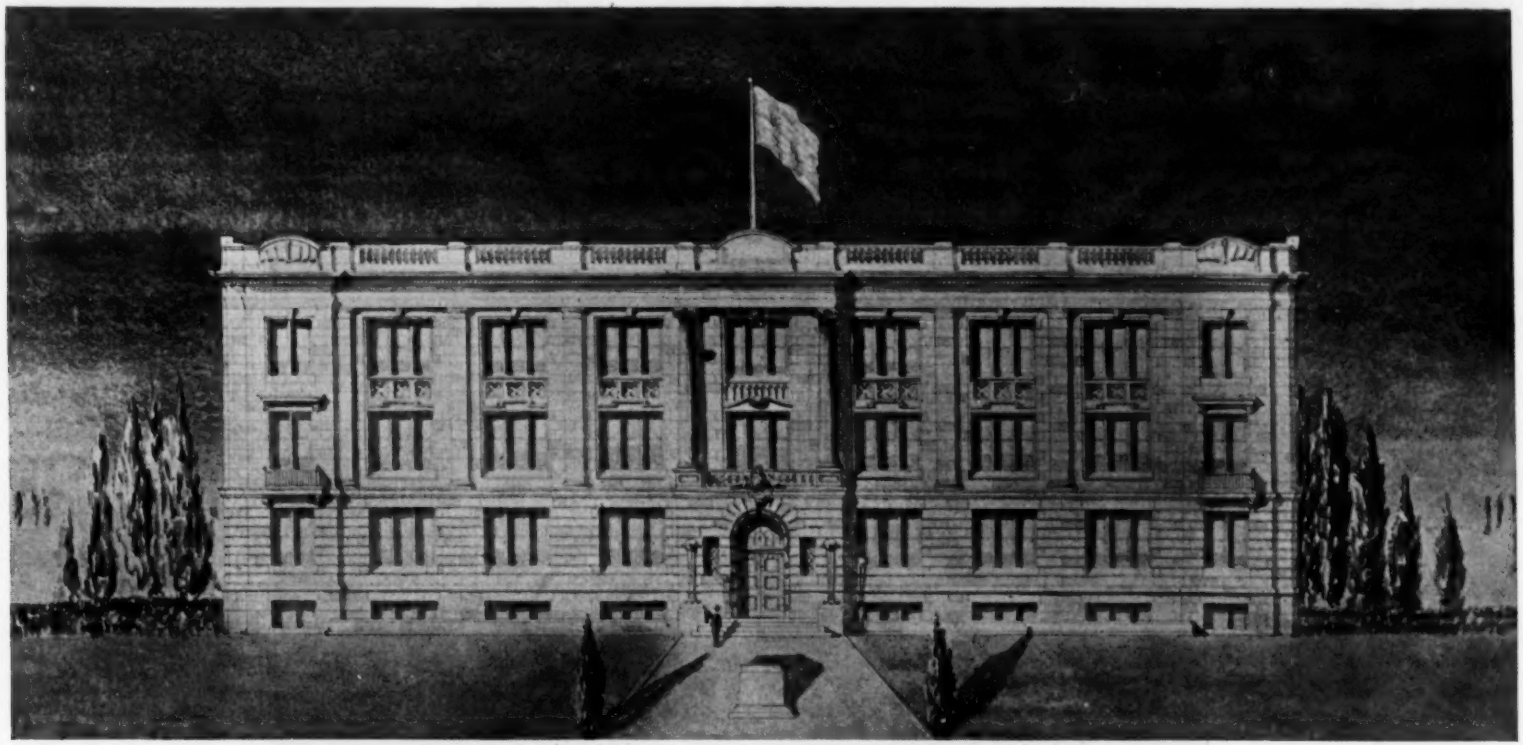
Statistics of Universities, Colleges and Professional Schools: 1923–24. Prepared in the Statistical Division, Bureau of Education, Department of the Interior, and issued as Bulletin, 1925, Number 45, being advance sheets from the Biennial Survey of Education in the United States, 1922–1924. 160 pages.

For the school year 1923 to 1924 reports were received from 144 universities, colleges and professional schools under public control, 769 under private control, and 150 independent professional schools. Among these there were 63 schools of pharmacy, 80 schools of medicine, 12 schools of veterinary medicine and 43 schools of dentistry. The total number of students enrolled in the schools of pharmacy during the years given numbered 9951; those of the schools of medicine, 18,900; schools of veterinary medicine 511 and schools of dentistry, 12,947.

A Pathological Survey of the Para Rubber Tree (Hevea Brasiliensis) in the Amazon Valley. By James R. Weir, Pathologist of the Expedition of the United States Departments of Agriculture and Commerce to Investigate the Sources of Crude Rubber in the Amazon Valley and Pathologist in Charge of the Pathological Collections of the Bureau of Plant Industry, Department of Agriculture. Issued as Department Bulletin Number 1380. 130 pages.

A study of the diseases of Hevea Brasiliensis and related species, the numberless fungi and the range of hosts of the wood-destroying species. Due to the fact that most tropical crops receive little if any care after planting, the field, pathologically speaking, is new, and with the "exception of a few collections made by early botanists, very little mycological and no constructive pathological work has been done heretofore." Many of the problems of the rubber grower are those of the fungous agents of disease; a solution of those problems will have immeasurable effect upon the quantitative and qualitative production of crude rubber.

The Pharmacy Headquarters will soon be a realization—see that it and its departments are adequately endowed.



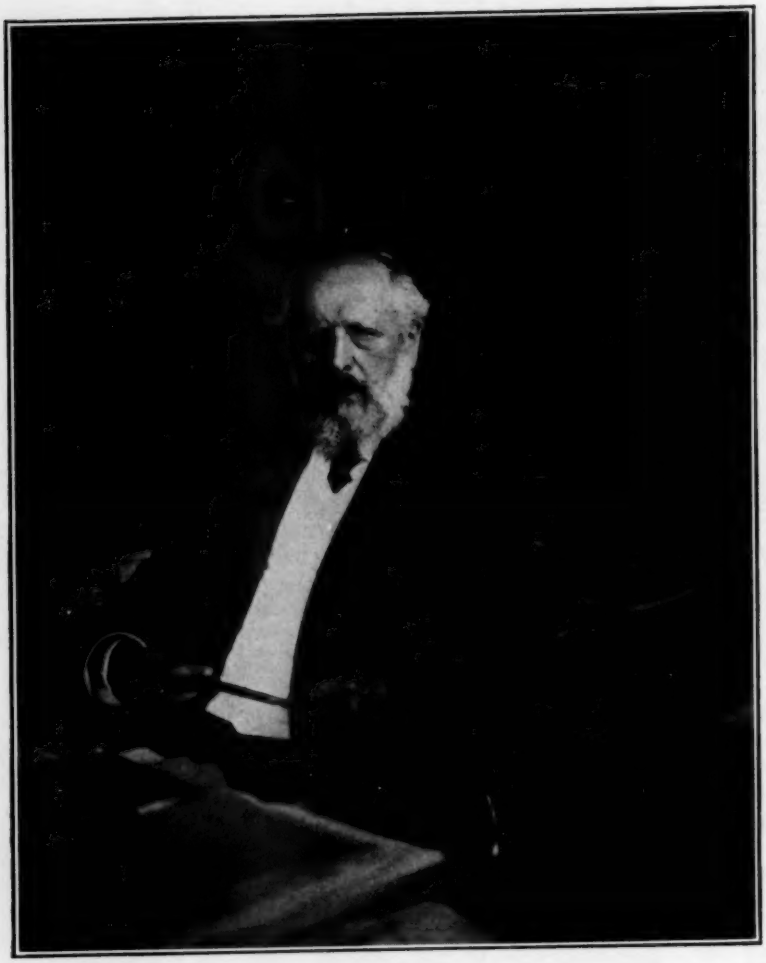
A DESIGN FOR THE A. PH. A. HEADQUARTERS BUILDING.

An architect, interested in the project, has submitted the above design of the A. PH. A. Headquarters Building and it, with the accompanying statement, is included here to provoke thought.

This building, 140′ × 50′ inside and with a library wing 32′ × 37′, projecting backward from the center, is suggested as adequate to house, for the present, the four activities to which the ASSOCIATION is now committed namely—its Executive Offices (including the direction of the JOURNAL, the YEAR BOOK, the NATIONAL FORMULARY, the Recipe Book and its publicity work); a Reference Library; an Historical Museum; and a Research Laboratory or Laboratories.

The building is so designed that it can be enlarged at any time to accommodate extensions of these activities, or new ones that may be found necessary, and to provide space to be used by other associations if they so desire.

This is a minimum size; it can be made as much larger as the response of the subscribers makes possible.



ALEXANDER TSCHIRCH.